PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

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ProAir
Warranty Procedures

1. The repair facility must contact ProAir by calling **574 264 5494** or **800 338 8544**, asking for the customer service department. The following information is required: ProAir serial number and model number, vehicle identification number (VIN), mileage, retail purchase date, and retail customer's name. The installers of ProAir's air conditioning units apply an installation sticker to the passenger-side door jamb. The information on this sticker tells what model unit was installed, the unit's serial number, date of installation, and the installers' assigned numbers. This information is very helpful when requesting warranty parts or technical assistance.
2. Describe the problem or type of warranty repair needed. Our customer service specialists are trained on ProAir's units and can aid you in diagnosing the problem.
3. If parts are needed, ProAir reserves the right to supply any and all warranty parts.
4. All warranty parts are shipped on a memo (no-charge) billing and are sent the same day if possible. An authorization number accompanies the replacement parts. Also noted on the memo billing is our labor allowance for the repair; labor allowances are based on ProAir's flat-rate standards multiplied by the repair facility's standard retail labor rate. All defective parts shall be returned to ProAir; shipping charges—by the most economical method—may be added to the cost of the repair. **No warranty claims will be paid without the return of defective parts.**
5. Warranty claims submitted to ProAir must include the following: ProAir authorization number, ProAir serial number, vehicle serial number, mileage, and authorized labor amount. ProAir does not pay tax or miscellaneous shop supplies. All claims must be submitted within 180 days of the date of repair, and all parts must be returned in order to receive payment on these warranty claims.
6. ProAir reserves the right to deny any claims without the proper documentation or claims that were for improper repairs. Service management is responsible for implementing controls to eliminate improper or unnecessary repairs and providing accurate information on the claims. This includes a complete and clear description of the vehicle's concern and required repairs.

ProAir
28731 County Road 6
Elkhart, Indiana 46514
574 264 5494
800 338 8544

PROAIR LLC

COMMERCIAL UNITS

INSTALLATION GUIDELINES

This manual contains general guidelines for the service/installation of ProAir/frigiking commercial, mobile heating and heat/cool equipment.

This manual has been prepared for the use of trained personnel who are familiar with the service/installation of mobile heating and heat/air conditioning systems as described in the manual. Do not attempt service/installation based solely on the information in this manual.

COMMERCIAL GUIDELINES

I. EVAPORATORS:

A. Suspended unit must be bolted with lock-nut and washer using a grade 5 bolt minimum.
B. Units mounted to a shelf or "sitting: on a platform can be held in place with a self-tapping screw. (#10 minimum)
C. Must have a sufficient amount of airflow area around unit. Minimum 60 square inches intake area.
D. Drain hose at constant downward slide.
E. Ducting: no wire reinforced duct hose behind instrument panel. Use plastic only.
F. Elbows/clamps used at 90 degrees bends. Kazoo valves should be used to ensure proper condensation drainage in all draw through systems.

II. CONDENSERS:

A. Suspended units must be bolted with lock-nut or nut and washer using a 5/16" diameter grade 5 bolt minimum.
B. Radiator units can be mounted with self-tapping screws. Make sure proper quantity and size screws are utilized (2 screws per mounting bracket supplied), recommend #10 screws.
C. Condensers on skirts must be away from exhaust and engine heat a minimum of 4". Airflow must be from outside of vehicle. See Fig. 1.
D. Install in a manner so as not to re-circulate hot air. See Fig. 2.
E. Maximum distance of radiator mount condenser from OEM radiator is 1" (minimum distance is ½").
F. Care should be taken when mounting condenser under belly of vehicle. Splash guards/protective shields may need to be used depending on mount location.

FIG.1

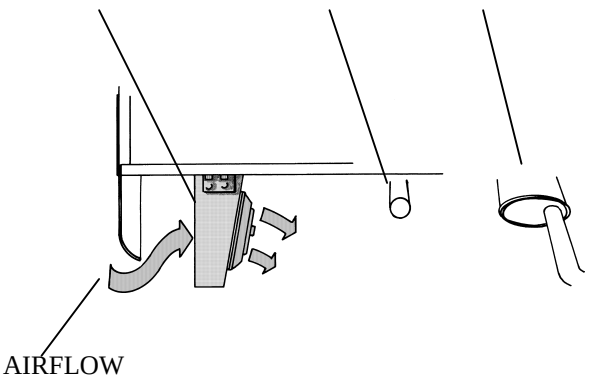
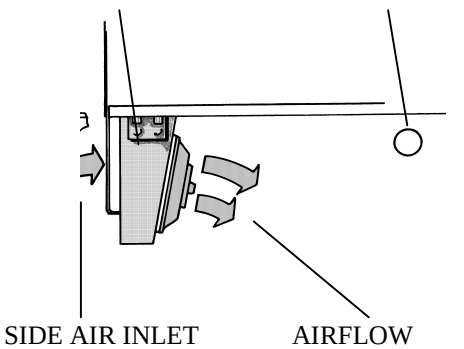


FIG. 2



III. MOUNT AND COMPRESSORS:

A. Refer and follow mount sheet supplied wit each respective kit.
B. Locking devices such as lock-nuts, lock washers, or lock-tite must be used on all fastener positions (refer to mount sheet).
C. Belts should be adjusted to specification of belt size/style.
D. Belt alignment must be checked with straight edge. Adjustments should be made and checked when applicable.
E. Compressors must be checked to ensure oil has been added. Additionally, some compressors are shipped dry, regardless of markings or tags indicating oil amount. Check all compressors!

IV. A/C HOSES:

A. Routing of hose must meet minimum 4" bend radius specification.

B. Route no closer that 4" from "HOT" surfaces (exhaust, EGR tubes and wrapped with heat tape).

C. Hose in abrasion areas where they may be subject to chaffing must be protected with convoluted tubes.

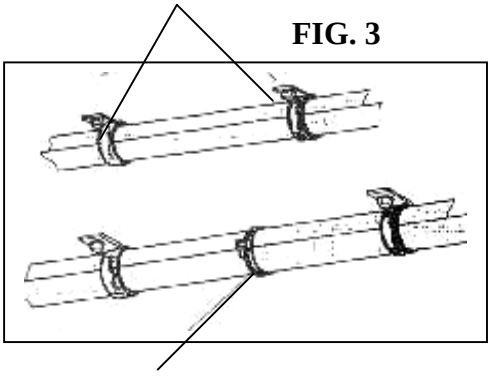
D. Any sharp edge that contacts hose should be protected with trim lock.

E. Hoses that pass through metal, plastic, aluminum must be protected by a grommet. Grommet must snap in place or be secured with screws. If grommet is not available, use trimlock.

F. All hoses must be supported by linestakes. Linestake must be positioned every 12" to 16" but no more than 24". Hose must be held together with ty-raps if linestakes are more than 16" apart. See Fig. 3.

LINESTAKES 12" TO 16" APART

FIG. 3



LINESTAKES 1" TO 24" APART
PUT A TRAP IN BETWEEN

V. HEATER HOSES:

A. Routing of hoses must meet minimum 4" bend radius specification.

B. Route no closer that 4" from "HOT" surfaces (exhaust EGR tube etc.) Hoses closer than 4" must be wrapped in heat tape.

C. Hose in abrasion area where they may be subject to chafing must be protected with convoluted tubing.

D. Any sharp edge that contacts hose should be protected with trimlock.

E. Hoses that pass through metal, plastic, aluminum must be protected by a grommet. Grommet must snap in place or secured with screws. If a grommet is not available, use trimlock.

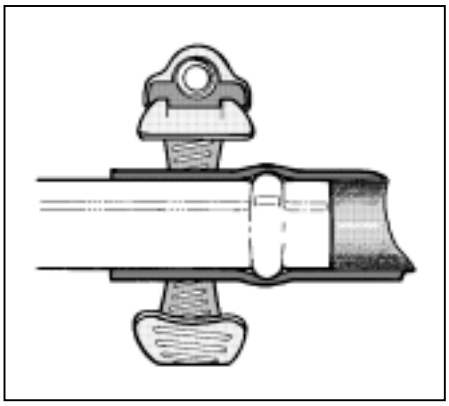
F. Hose clamps must be positioned properly as shown in Fig. 4.

G. Torque wormgear clamps at 30 in/lb.

H. Wyes should be used when tying into OEM heater lines.

See accompanying illustration for plumbing schematic.

FIG. 4



VI. ELECTRICAL

A. Route wiring no closer than 4" from "HOT" surfaces (exhaust, EGR tube, etc.).

B. All wire harnesses will be in convoluted tubing.

C. All crimped terminations must be crimped with stake-on brand or ratcheted type crimpers.

D. All exterior crimped connections will be covered with shrink tube. Electrical tape may be used on interior crimped connections.

E. Crimps will be visually inspected for proper insertion of wires into connection point and also tested for integrity of crimp.

F. All battery connections will be coated with a corrosive inhibitor.

G. All other exterior connections will be coated with a dielectric grease.

ELECTRICAL CONTINUED ON NEXT PAGE.

H. All “plug together” connections that do not have positive locking mechanisms will be tie wrapped. See Fig. 5.
I. All relays will be screwed in place with harness exiting from bottom of relay.
J. SAE wire GA/AMP/RUN chart. (Refer to Section XI, Table A). See chart for wire size, amp draw, etc.
K. Chart on electrical fittings. (Refer to Section XI, Table B).
L. Wire guidelines to follow when harness not available:
    1. Do not duplicate colors in system.*
    2. Appropriate gauge wire for each application is indicated in the chart.
    3. Refer to electrical guidelines stated above.

*Red w/wht-Power 12 + , Pink-Ign, Blue-Clutch, Balck-Ground, Yellow-Low, Red-Medium, Orange-High.
M. Circuit protection (Circuit breaker, fuse, etc.), if not supplied must be used between device and power supply, battery or ignition.

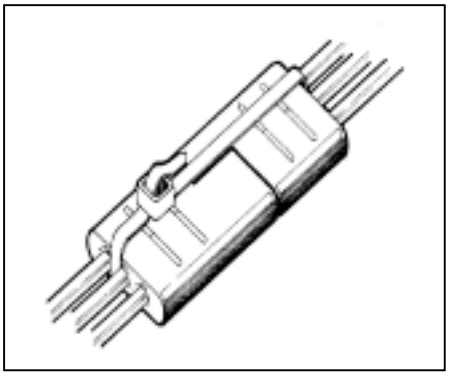


Fig. 5

VII. CHARGING
A. System will need proper oil and refrigerant per manufacturer specifications.
B. System should be evacuated to 29” of mercury for 30 minutes.
C. Finished system should be leak checked with an approved leak detector.

VII. FITTINGS
A. All fittings will be a bead lock style.
B. All crimping should be to SAE J20634 specifications.
C. All o-rings will be lubricated with mineral oil.
D. All fittings must be torqued to proper torque specifications. (See Section XI, Table C.)

IX. FINISH SECTION
A. Final inspection checklist will be filled out.
B. Any warranty documents need to be completed.
C. All documentation needs to either 1. Stay with the unit, or 2. Be routed to proper authority at the place of installation.
D. Kits that have trim pieces (i.e. covers/plenums), that are installed by the installer must be checked for fit, finish and proper attachment.
E. Make sure there are no other customer requirements necessary for completion of installation.

X. ACCESSORIES
A. CABLES:
-Cables to be run through firewall with grommet.
-Cables to be run as straight as possible.
-All attachment points of cable ends to utilized push pins.
-Cable adjustment devices to be checked and adjusted as required.

ACCESSORIES CONTINUED ON NEXT PAGE

B. CONTROL HEAD:

-Verify electrical installation of control head. (Refer to electrical requirement.)

-Check functions of control head such as free movement of cable controls and proper function of electrical controls.

-Make sure switch is mounted securely and switch appearance (i.e. switch position) is acceptable to customer.

C. VALVES:

-Manual water valves to be mounted in accessible location.

-Refer to hose sections for clamping practices.

-Push/pull water valves to be adjusted so valve can be totally shut off.

-Solenoid valves to be mounted either inside of vehicle or in engine compartment. Do not install to under belly of vehicle. Refer to Electrical/Refrigerant/Fitting Guidelines.

D. BOOSTER PUMPS:

-Follow the illustration for pump installation and plumbing schematic.

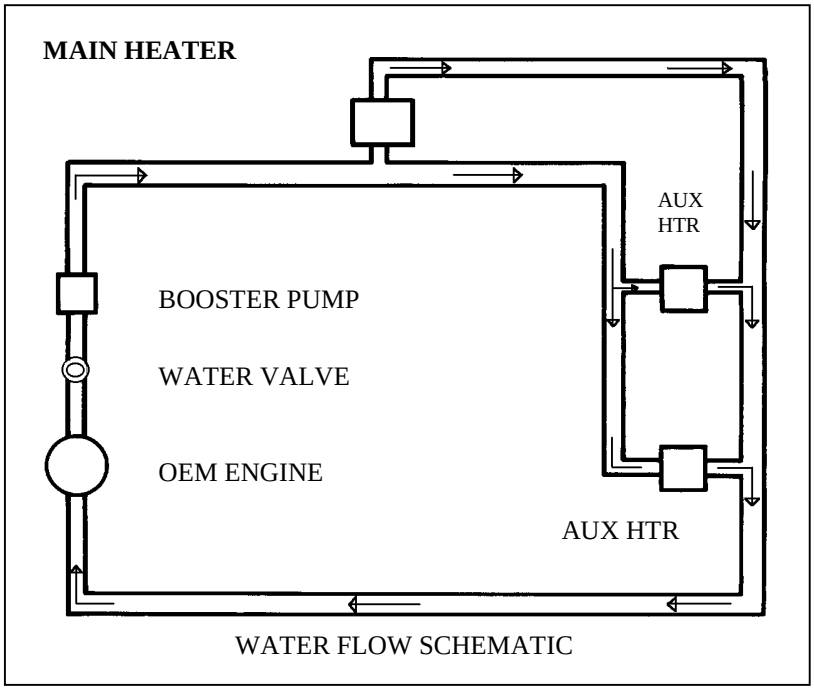
-Follow booster pump instruction included with the booster pump install kit or consult factory.

-Any questions, consult the factory.

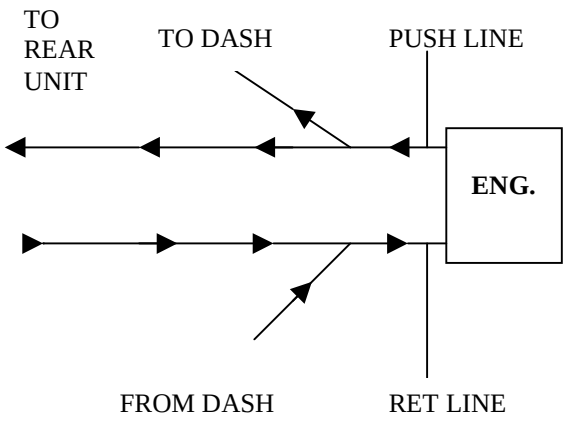
BOOSTER PUMP REQUIREMENTS FOR COMMERCIAL VEHICLES

Required on:

1. All diesel vehicles.
2. All gas vehicles w/overhead units and hoses longer that 20'.
3. All gas vehicles w/floor units and hoses longer than 30'.



WATER FLOW SCHEMATIC



XI. TABLES

TABLE A. CONDUCTOR SIZING TABLE - MAXIMUM 10% VOLTAGE DROP @ 12VDC

GAUGE SIZE		CURRENT DRAW IN AMPERES																		
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	40	50	60	70	80	100
MET	ENG	MAX LGTH OF SAEJ 1128 CONDUCTOR (in feet) FROM POWER SOURCE TO DEVICE. (See ground circuit note in lgth determining process.)																			
.5mm²	20	107	53	36	27	21	18	15	13	12	11	7									
.8mm²	18	172	86	57	43	34	29	25	21	19	17	11	9								
1.0mm²	16	261	130	87	65	52	43	37	33	29	26	17	3	10							
2.0mm²	14	413	207	138	103	83	69	59	52	46	41	28	21	17	14						
3.0mm²	12	651	326	217	163	130	109	91	81	72	65	43	33	26	22	16					
5.0mm²	10	1043	521	348	261	208	174	149	130	116	104	70	52	42	35	26	21	17			
8.0mm²	8	1653	827	551	413	331	276	236	207	184	165	110	83	66	55	41	33	28	24	21	
13.0mm²	6	2892	1446	954	723	578	482	413	362	321	289	193	145	116	96	72	58	48	41	36	29
19.00mm²	4	4170	2085	1390	1043	834	695	596	521	463	417	278	209	167	139	104	83	70	60	52	42

TABLE B. APPLICATION CRITERIA FOR USE OF MULTIPLE CONDUCTORS WITHIN TERMINAL (OR CONNECTORS)

TERMINAL SIZE	ALLOWABLE CONDUCTOR COMBINATION
18 GA	1-18 GA. 2-20 GA.
16 GA	1-16 GA/ 2-18 GA
14 GA.	1-14GA. 2-16A GA. 3-18 GA.
12 GA.	1-12 GA. 2-14 GA. 3-16 GA. 4 OR 5-18 GA.
10 GA.	1-10 GA. 2-12 GA. 3-14 GA. 4 OR 5-16 GA.

TABLE C.

FITTING TORQUE SPECIFICATIONS

TUBE O.D.	THREAD SIZE	FITTING SIZE		FT/LB
		STANDARD	METRIC	6 +/- 1
¼”	7/16”	4	M-14	12 +/- 1
3/8”	5/8”	6	M-16/M-18	18 +/- 2
½”	¾”	8	M-20/M-22	24 +/- 3
5/8”	7/8”	10	M-24	31 +/- 2
¾”	1 1/16”	12	M-27	30 +/- 3
tube “O”	1” - 14	FTO	N/A	30 +/- 3

OWNERS MANUALS:

- 105, 925, 935
- 526/552

INSTALLATION INSTRUCTIONS:

- 106 Roof Mount Condenser
- 400 Series Heaters
- 901 Heaters

PROAIR LLC

OWNER'S MANUAL

105, 925, 935
AUXILIARY UNITS

ProAir, LLC
28731 County Road 6
Elkhart, IN 46514
574-264-5494

Revised January, 2003

PRO AIR LLC

105, 925, 935 OWNER'S MANUAL

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PROAIR LLC

105, 925, 935 OWNER'S MANUAL

Owners Information

Thank you for choosing ProAir, LLC auxiliary unit for your automotive needs. All ProAir systems have been designed and manufactured to provide our customers with superior performance, outstanding durability and service. Each component is chosen from the latest technology and highest quality available.

ProAir, LLC has been a manufacturer and installer of auxiliary heat/cool units to the specialty vehicle market for over 20 years. The emphasis has been on quality and service from the very beginning. ProAir is the leader in innovation, response to customer requirements and customer service.

CUSTOMER SATISFACTION IS OUR NUMBER ONE PRIORITY!

PRO AIR LLC

105, 925, 935 OWNER'S MANUAL

SPECIFICATIONS

925 COOL ONLY

24,000 BTU / 366 CFM
16” long x 10.25” wide x 6.75” high
9 amp current draw @ 13.5 volts

935 HEAT / COOL

32,000 BTU / 650 CFM Cooling
35,000 BTU / 650 CFM Heating
17.5” long x 13.25” wide x 9.25” high
18 amp current draw @ 13.5 volts

105 CONDENSER

40,000 BTU / 2-11” Axial fans
Dryer w/sightglass and Hi/Lo Pressure Switch
Fan Motors 12 volt Weather Proof
Current Draw=17 amps @ 13.5 volts

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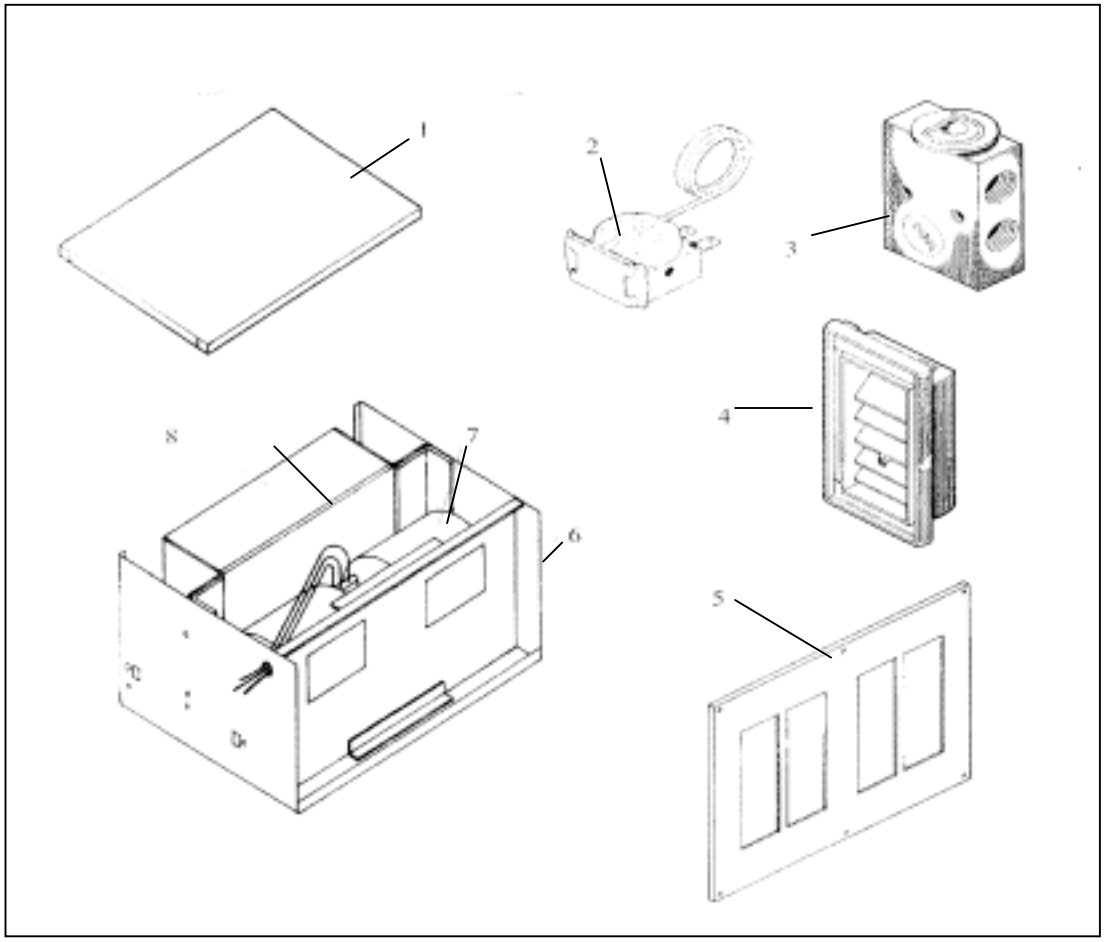
105, 925, 935 OWNER'S MANUAL

925 COOL ONLY



KEY	PART NUMBER	DESCRIPTION
1	06 000 032	Case Top
2	01 000 048	Thermostat, non-adjustable
3	05 000 022	Thermal expansion valve
4	11 000 008	Louver
5	06 000 035	Case front
6	06 000 031	Housing
7	11 000 138	Blower motor assembly
8	03 000 014	Coil

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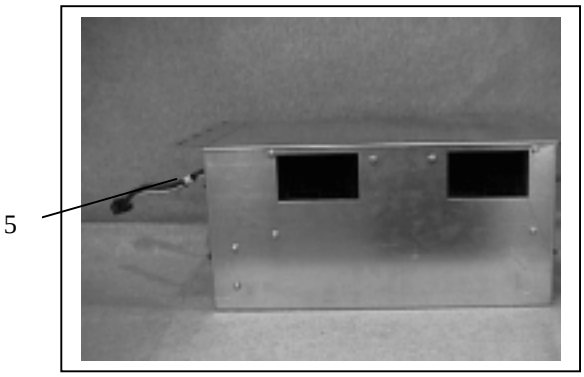
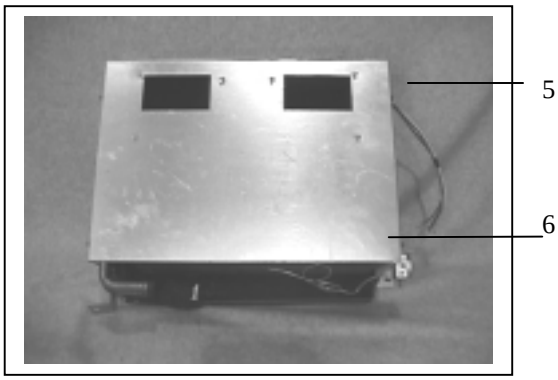
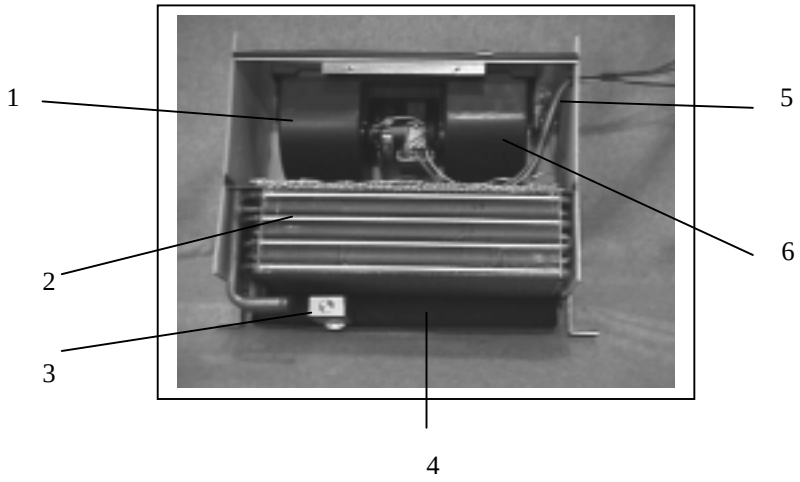
935 HEAT/COOL



P/N 66 000 087 frigiking, 935 h/c roof mt



P/N 66 000 046 Power Pak, 99-935 vert



P/N 66 000 004 frigiking, power pak 98-935 h/c

KEY	PART NUMBER	DESCRIPTION
1	68 000 006	Blower Assembly, SPAL double w/seals
2	03 000 045	Coil, Heat/Cool
3	68 000 024	Valve, expansion block R-134a 2 ton
4	07 000 338	Pan, drain roto cast
5	01 000 206	Harness, wire (P/N 66 000 087)
	01 000 073	Harness SPAL Blower motor (P/N 66 000 004)
	01 000 071	Harness, 960 blower (P/N 66 000 046)
6	01 000 048	Thermostat, non adjustable w/12” cap tube

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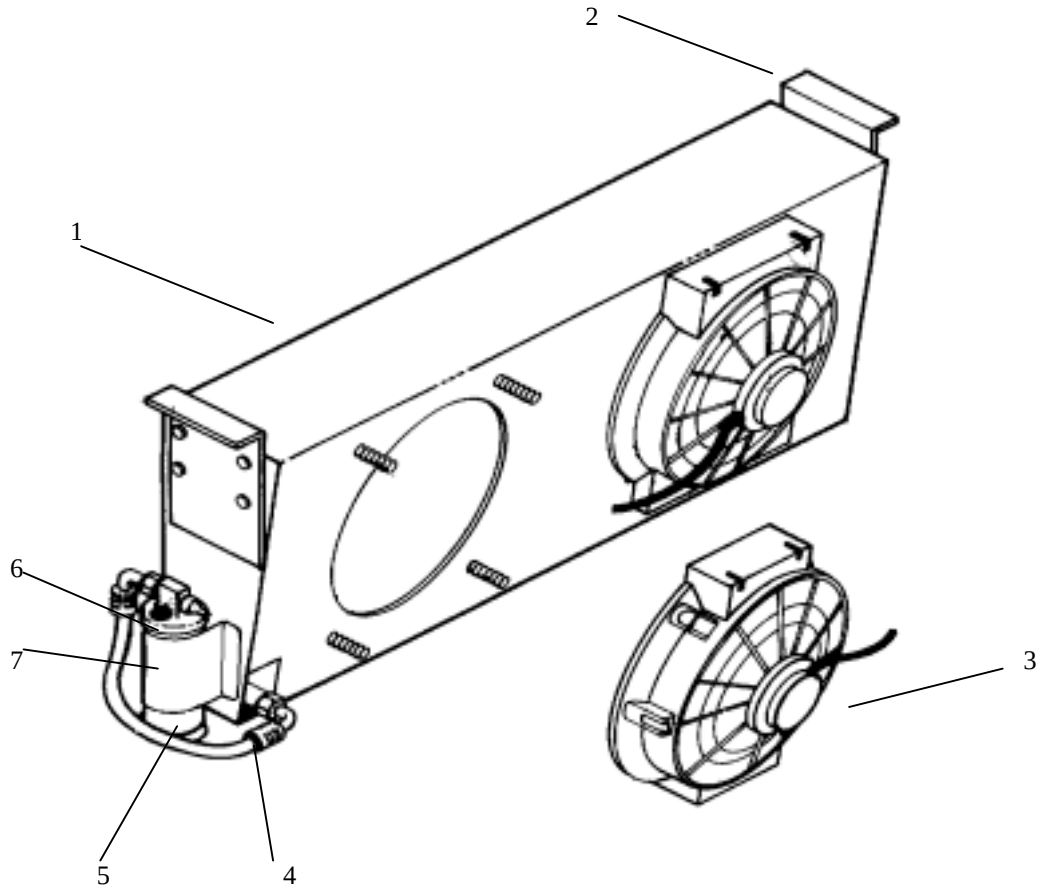
105, 925, 935 OWNER'S MANUAL

105 CONDENSER



KEY	PART NUMBER	DESCRIPTION
1	03 000 025	Coil, condenser
2	06 000 336	Mounting bracket, stainless steel
3	11 000 147	Fan, 11” puller W/P hi-output
4	60 000 398	Hose assembly
5	05 000 099	Drier bottle
6	01 000 070	Switch, high-low pressure
7	06 000 335	Mounting bracket, dryer bottle, stainless steel

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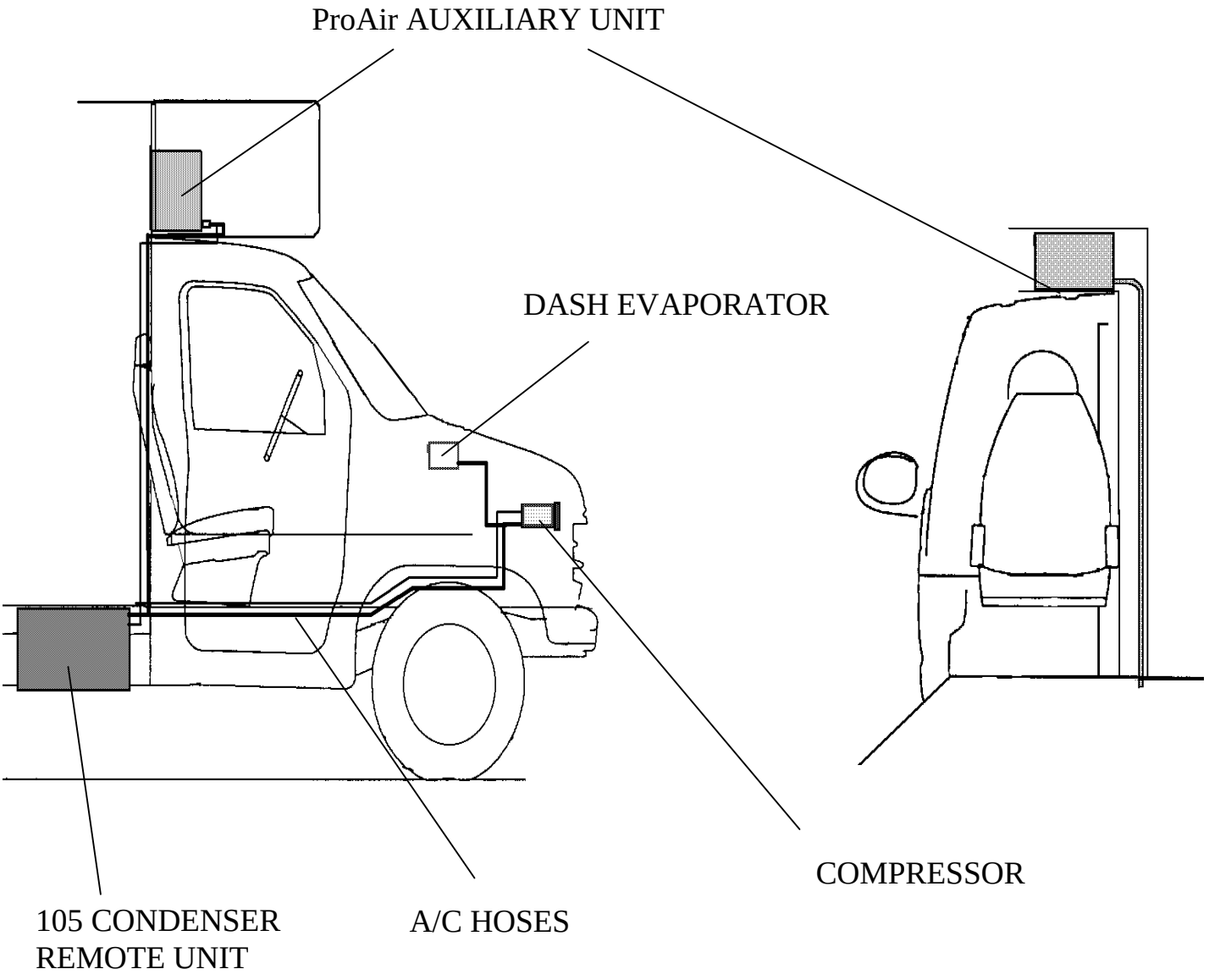

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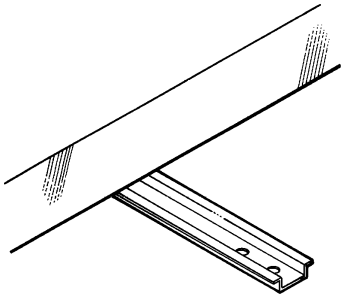
105, 925, 935 OWNER'S MANUAL

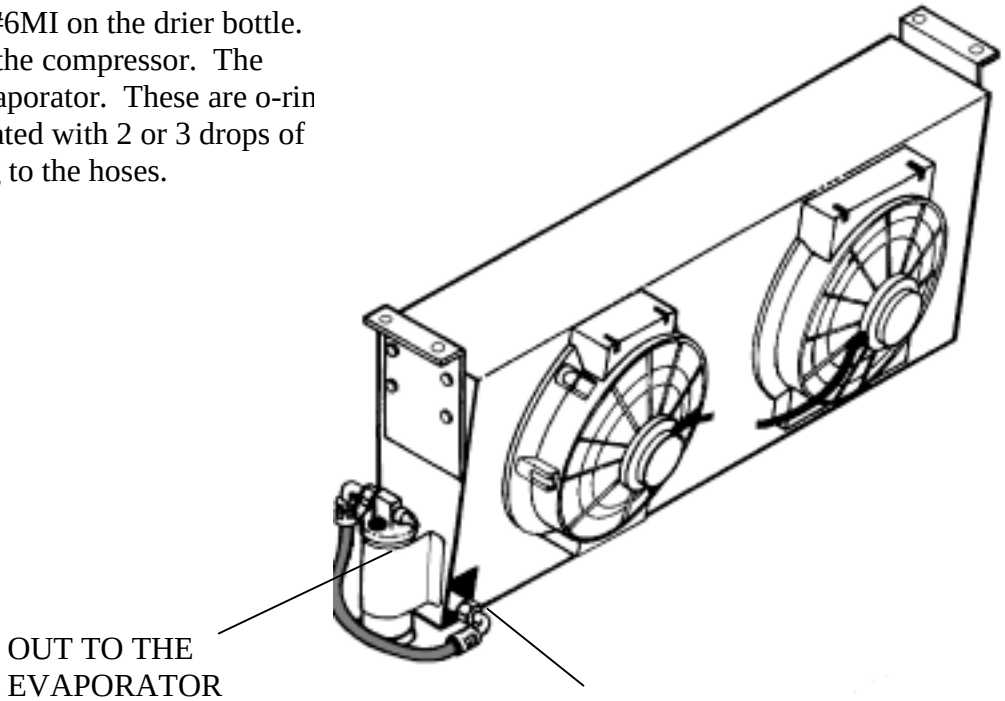
105 UNIT INSTALLATION

UNIT ATTACHMENT: The unit must be attached to the steel framework of the vehicle. The condenser must be bolted to the vehicle frame with a grade 8 bolt, lock washer and nut or a locking nut. The bolt diameter should be a minimum of four bolts per condenser is required.



FRAME/OUTRIGGER. BOLT THE CONDENSER TO THE FRAME/OUTRIGGER WITH A GRADE 5 BOLT, LOCK WASHER AND NUT, (OR LOCKNUT). MINIMUM BOLT DIAMETER IS 5/16".

REFRIGERANT CONNECTIONS: The condenser has two connection points, one is the #8MIO on the condenser and the other is a #6MI on the drier bottle. The #8MIO is the inlet from the compressor. The #6MIO is the outlet to the evaporator. These are o-rin fittings, and should be lubricated with 2 or 3 drops of mineral oil before connecting to the hoses.



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105, 925, 935 OWNER'S MANUAL

ELECTRICAL CONNECTIONS

ELECTRICAL CONNECTIONS: The red/white 12ga. wire from the relay is a positive 12 volt connection and should be hooked to the positive post on the battery. This circuit must be protected with a 20 amp fuse, or manual reset circuit breaker. The ring terminal with the two black wires, (1-14ga and 1-12 ga.), is the ground wire for the condenser and must be hooked to the vehicle frame with either a bolt and nut or a self tapping screw. On the drier bottle there is a pressure switch. This pressure switch has two wires, a blue 14ga wire goes to the thermostat. If required, the 14 ga. blue/white wire goes to the OEM compressor clutch. NOTE: If the clutch wire is longer than 20 feet, a clutch relay must be used so a voltage drop does not occur. All additional wiring must be rated for the voltage and system application so failure does not occur. Refer to Commercial Guidelines. See wiring diagram on next page.

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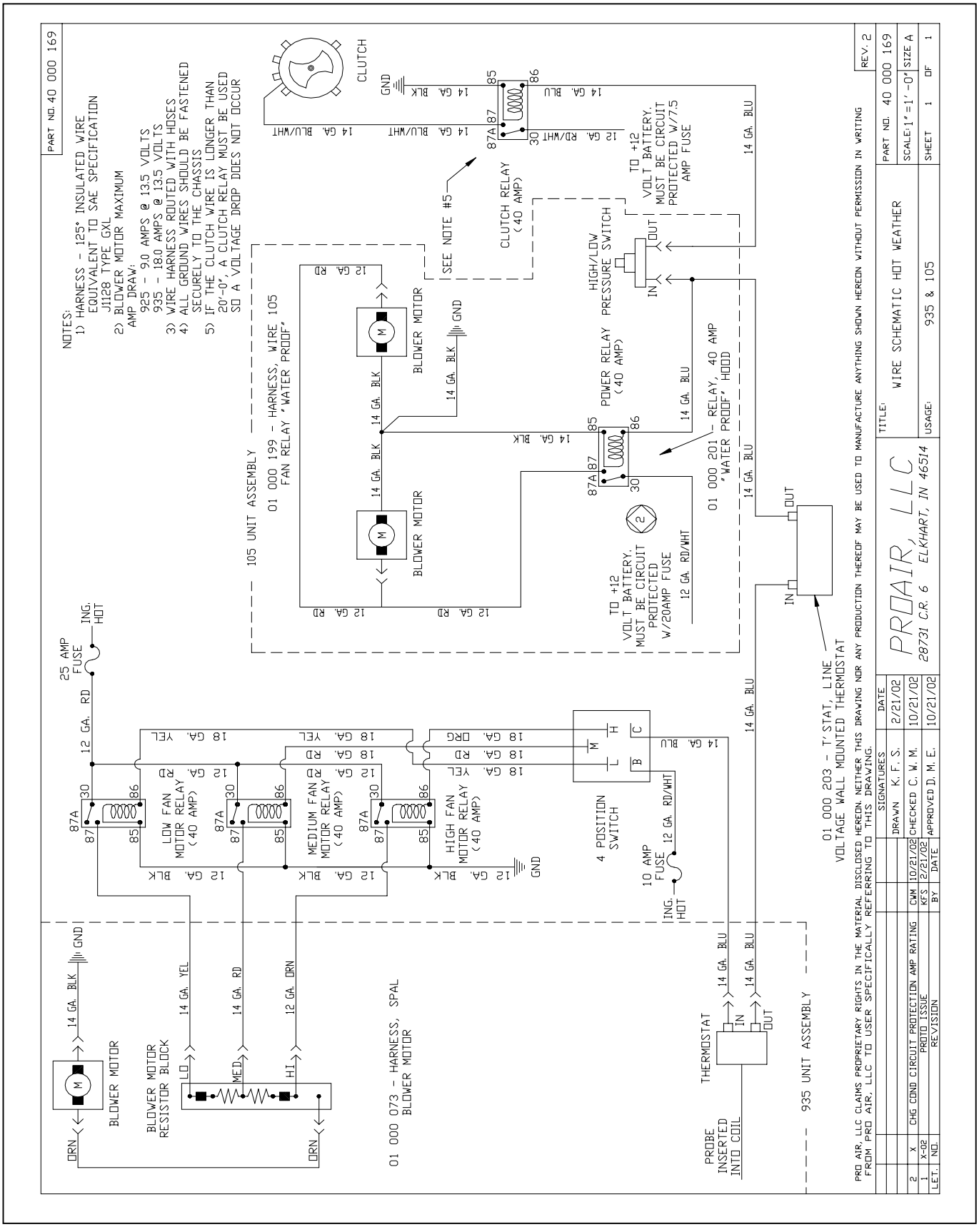
105, 925, 935 OWNER'S MANUAL

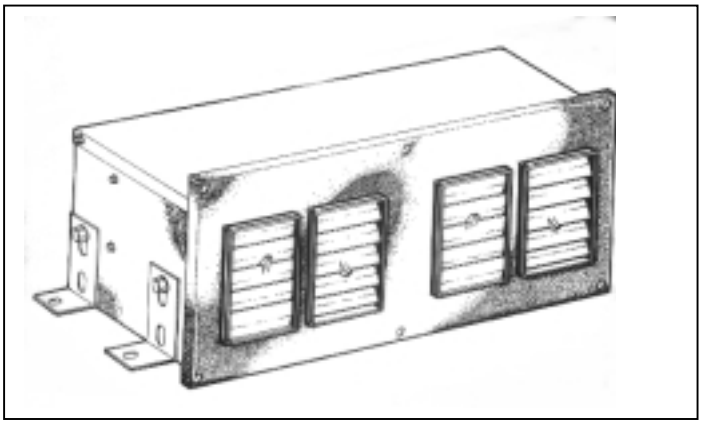


PROAIR LLC

105, 925, 935 OWNER'S MANUAL

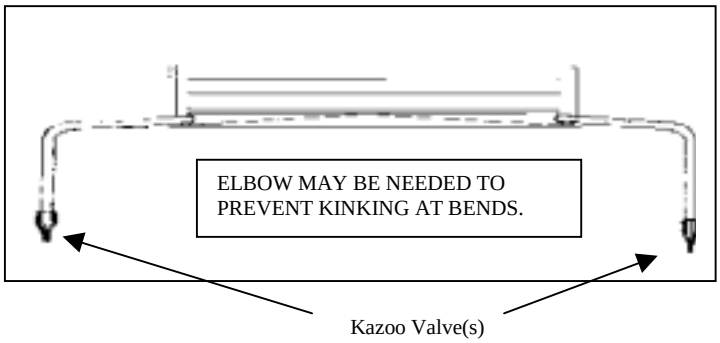
925 COOL/ONLY and 935 HEAT/COOL

UNIT MOUNTING: The 925 and 935 case is supplied with integral mounting legs. These are to be screwed or bolted to the vehicle structure. The case must be mounted with the front ½" higher than the rear, (for proper drainage). The air intake must be a minimum of 60 square inches of free area. The opening used to mount the unit must be large enough to also remove the unit, (7x16x1/4" for the 925 and 9 ½ x 19 ¼" for the 935). After the unit is mounted to the vehicle structure and properly positioned, torque the bolts in the case mounting brackets to 20 ft/lb.

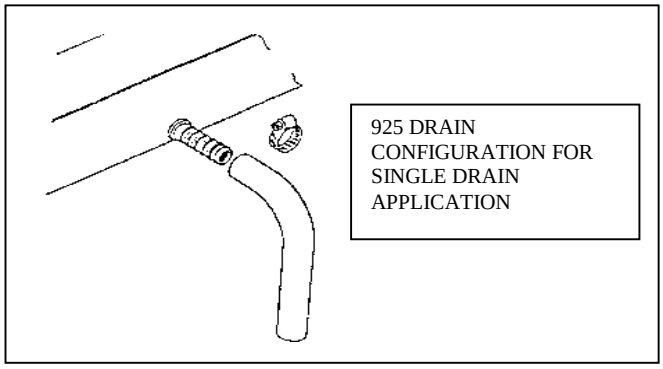


935 DRAIN CONFIGURATION

DRAIN HOSE: Drain hose(s) must be secured to the nipples with worm gear type clamps. Torque these clamps to 30 in/lb maximum. Drain hose(s) must be routed in a manner to provide a constant downward slope of ¼" per foot. Use elbows as needed to prevent kinks in the hose. The kazoo valve provided in the kit must be installed on the end of the drain line. This will prohibit dirt, etc. from entering the evaporator.



HOSE INSTALLATION: Install theproper size o-rings on the fittings, lubricate with 2 or 3 drops of mineral oil, and connect the refrigerant hose to the unit. Tighten the liquid line to 12 ft/lb. and suction line to 20 ft/lb. Connect the heater hoses to the unit and secure with worm gear hose clamps tightened to 90 in/lb. When routing the hoses to appropriate area, support them with a linestake every 12" to 18". The minimum bend radius when routing the hoses is 4". Hoses must be protected from tub thru and all hot surfaces. Refer to Commercial Guidelines.



NOTE: HOT WATER FLOW MUST BE OFF WHEN THE AIR CONDITIONER IS ON.

PROAIR LLC

105, 925, 935 OWNER'S MANUAL

PREVENTIVE MAINTENANCE

In order to keep your air conditioning system operating at peak performance, a routine maintenance schedule must be followed.

- **Annually:** The system should be checked and serviced at a qualified service center.

TROUBLESHOOTING

- Familiarize yourself with your system's components, wiring, plumbing and controls.
- Check that the appropriate switch(s) for the mode you are trying to select, is in the "on" position.
- Refer to the following Troubleshooting Charts:

PROBLEM	CAUSE	SOLUTION
System not blowing, or fan not blowing.	Blown fuse.	Replace fuse, check wires for short.
	If OK check for…	
	No voltage to switch.	Check electrical supply and wires.
	If OK check for…	
	No voltage to motor.	Check wires for loose connection.
	If OK check for…	
	Improper ground.	Tighten or reground motor.
	If OK…	Replace motor.
System not cooling/ Compressor not on.	Refrigerant level low.	Find and fix leak, add refrigerant.
	If OK check for…	
	Clutch not engaging.	Check voltage to clutch.
	If OK check for…	
	Hot water flow into evaporator.	Refer to heating system troubleshooting.
	If OK check for…	
	Blockage in system.	Replace defective parts. Contact ProAir Service Rep.
System not heating.	No water flow to heater.	Check for kinds in hoses.
	Water valves not opening.	Check vacuum actuator or cable.
	Vacuum actuator not operating.	Check vacuum lines and replace.

ProAir 1-Year/12,000-Mile Limited Warranty

1. ProAir warrants every heating and cooling unit produced by ProAir and used in a commercial or specialty vehicle to be free from defects in material and workmanship under normal use for a period of twelve (12) months or twelve thousand (12,000) miles, whichever comes first.

2. If a repair or adjustment under the warranty is required, the product should be taken to an authorized ProAir service center or, if possible, taken to the original installer. The owner's registration certificate should be presented.

3. **The repairing service center must contact ProAir by calling 574 264 5494 or 800 338 8544, asking for the customer service department and describing the type of warranty repair needed. If warranty parts are needed, ProAir reserves the right to replace them. No warranty claims will be paid without the return of defective parts to ProAir.**

4. If the ProAir service center is too far away, the customer may find a repairing facility nearby and contact ProAir. We will attempt to allow the repair facility authorization to address the concern.

5. This warranty does not cover any product which has been subject to misuse, neglect, alteration, accident, improper installation, or improper maintenance, or which has been repaired outside of an authorized ProAir service center in any way so as to affect adversely its performance or reliability. This warranty does not cover material or labor used in normal maintenance services or the replacement of service items. Normal wear of service items shall not be considered defects under this warranty. This warranty does not cover customer lost time, vehicle towing, vehicle rental, or lodging.

6. This warranty does not include consequential damages, and ProAir shall not be responsible for any such damages. ProAir does not make and does not authorize any person to make for it any warranty other than the foregoing warranty. Such other warranties, if any as may be imposed or implied by law, are limited in duration to the duration of this written warranty.

7. Some states do not allow limitations on how long an implied warranty lasts, nor do they allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. This warranty gives specific legal rights, and other rights which vary from state to state.

8. This warranty does not cover loss of refrigerant unless the loss is a direct result of a defect covered by this warranty.

PRO AIR LLC

105, 925, 935 OWNER'S MANUAL

REFRIGERANT CHARGE AMOUNTS

925 W/1/4' OF HOSES (A/C - ½", 5/16"	12oz R-134A	3oz. OIL
935 W/14' OF HOSES (A/C - ½", 5/16")	16oz R-134A	4oz. OIL

105/106 CONDENSER ADDED TO SYSTEM (A/C 13/32", 5/16") ADD 16oz R-134a AND 3OZ OF OIL TO 925/935 AMOUNTS.

NOTE: FOR EACH ADDITIONAL 10' OF LIQUID LINE ADD 3oz OF R134a and .75 OIL. LIQUID LINES LONGER THAN 25' YOU MUST CONSULT THE FACTORY FOR CHARGE AMOUNTS. DIFFERENT SIZE (DIAMETER) HOSES, CONSULT FACTORY FOR CHARGE AMOUNTS.

CAUTION: USE ONLY THE EXACT OIL SPECIFIED BY THE COMPRESSOR MANUFACTURER. USE OF OILS OTHER THAN THOSE SPECIFIED WILL VOID THE WARRANTY!

PROAIR LLC

OWNER'S MANUAL

526/552
COOL ONLY and HEAT /COOL

ProAir, LLC
28731 County Road 6
Elkhart, IN 46514
574-264-5494

Revised January, 2003

526/552 OWNER'S MANUAL

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526/552 OWNER'S MANUAL

UNIT INSTALLATION: The cargo box unit has two mounting brackets. These brackets are located one on each side of the unit. The cargo box unit must be attached to steel beams or supports with at least on 5/16" grade 8 bolt at each mounting bracket. Use lock washers and nuts or lock nuts on each bolt.

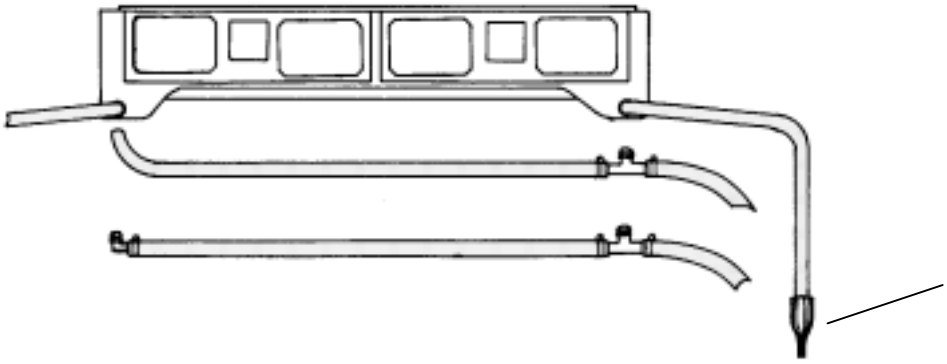
Install the proper size o-rings on the fittings, lubricate with 2 or 3 drops of mineral oil, and connect the refrigerant hoses to the unit. Tighten the liquid line to 12ft/lb and the suction line to 20ft/lb. Connect the heater hoses to the secure with worm gear hose clamps tightened to 30 in/lb.

GRADE 8, BOLT NUT AND WASHER.
(A LOCKNUT MAY BE USED IN LIEU OF A LOCKWASHER/NUT COMBINATION.)

When routing the hoses to the appropriate area, support them with a linestake every 12" to 18". The minimum bend radius when routing the hoses is 4". Hoses must be protected from rub thru and all hot surfaces.

The drain hose must be clamped at all connection points with the clamps provided. They should be torqued to 15 in/lb. The drain hose must be routed at a constant downward slope of at least ¼" per foot. Be sure and use the elbows and tees provided.

The provided Kazoo valve must be installed on the end of the drain line. This will prohibit dirt, etc. from entering the evaporator.

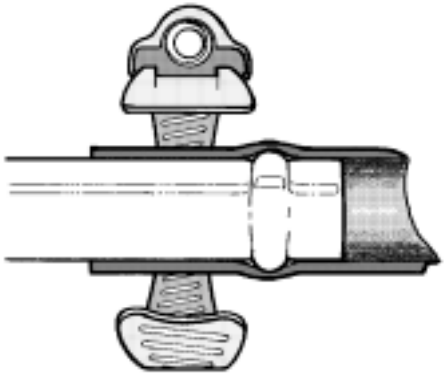


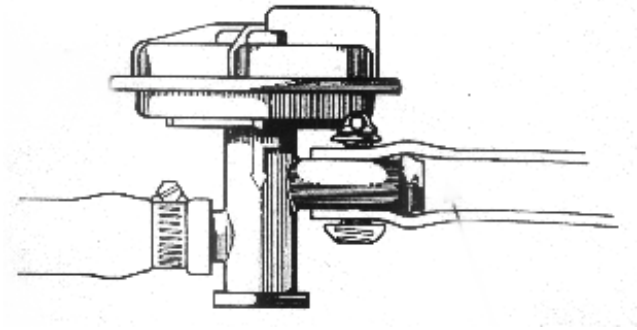
USE THE DRAIN CONFIGURATION BEST SUITED TO YOUR APPLICATION.
USE TEES AND ELBOWS AS REQUIRED.

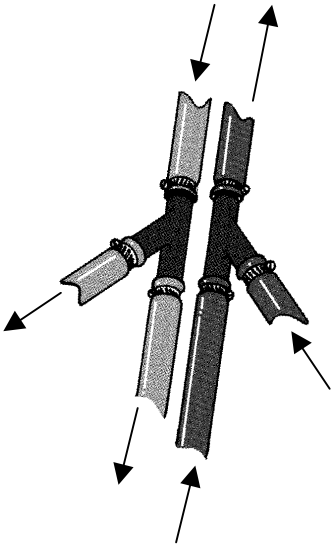
526/552 OWNER'S MANUAL

WATER LINE CONNECTIONS:
A water valve either manual, vacuum or electrically operated, must be used to control the water flow when the air conditioner has been turned on.

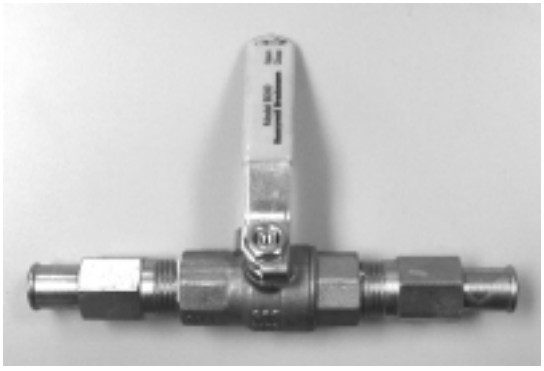
PROPER CLAMP INSTALLATION







TO WATER VALVE

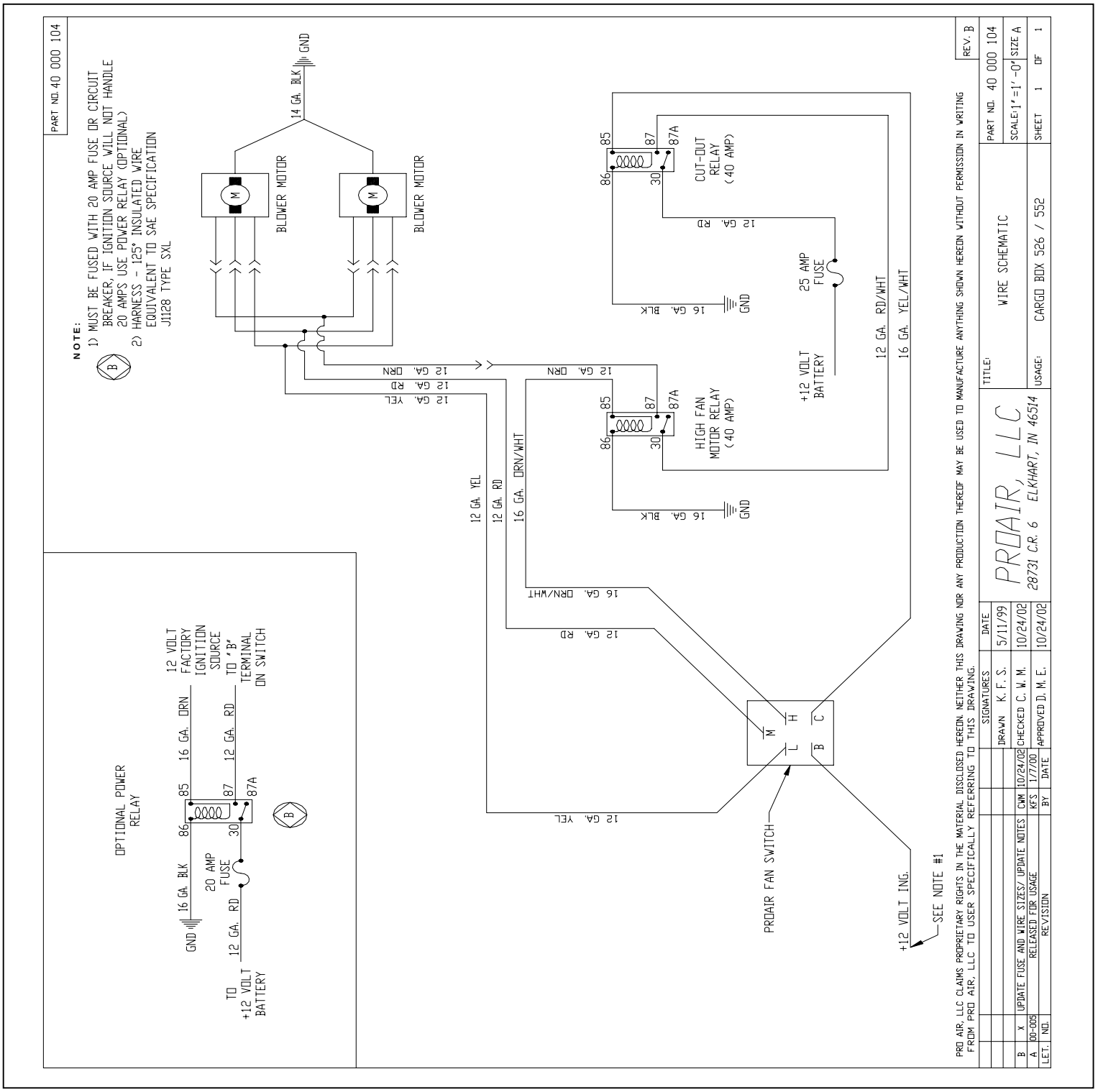


NOTE: HOT WATER FLOW MUST BE TURNED OFF WHEN THE A/C IS TURNED ON FOR MAXIMUM COOLING.

ELECTRICAL CONNECTIONS: The electrical hook-up consists of two main harnesses. The first two three pin flat connectors. These connectors hook to the mating plugs on the power pak. The remaining black wire gets hooked to the two black wires from the blower motors. This harness can then be routed along with the hoses to the engine compartment, and then thru the firewall to the dash area. The relay harness gets mounted under the hood by the battery. The long section with the orange yellow/white and orange/white wires get routed thru the firewall to the switch area along with the main harness. The yellow wire in the main harness gets hooked to the switch. The red wire in the main harness gets hooked to the M terminal on the switch. The orange wire in the main harness gets hooked to the orange wire in the relay harness. The orange/white wire from the relay harness gets hooked to the H terminal on the switch. The yellow/white wire from the relay harness gets hooked to the C terminal on the switch.

The black wire from the relay harness gets hooked to a good chassis ground. The red wire from the relay harness with the ring terminal gets hooked to the positive post on the battery. The remaining B terminal on the switch gets hooked to an ignition source. This wire must be protected with a 15 amp protection device, i.e. fuse, circuit breaker, etc. This source must be able to handle a fifteen amp load. If you're unsure, consult the factory! REFER TO SCHEMATIC ON THE NEXT PAGE.

526/552 OWNER'S MANUAL



TROUBLESHOOTING

- Familiarize yourself with your system's components, wiring, plumbing and controls.
- Check that the appropriate switch(s) for the mode you are trying to select, is in the "on" position.
- Refer to the following Troubleshooting Charts:

PROBLEM	CAUSE	SOLUTION
System not blowing, or fan not blowing.	Blown fuse.	Replace fuse, check wires for short.
	If OK check for…	
	No voltage to switch.	Check electrical supply and wires.
	If OK check for…	
	No voltage to motor.	Check wires for loose connection.
	If OK check for…	
	Improper ground.	Tighten or reground motor.
	If OK…	Replace motor.
System not cooling/ Compressor not on.	Refrigerant level low.	Find and fix leak, add refrigerant.
	If OK check for…	
	Clutch not engaging.	Check voltage to clutch.
	If OK check for…	
	Hot water flow into evaporator.	Refer to heating system troubleshooting.
	If OK check for…	
	Blockage in system.	Replace defective parts. Contact ProAir Service Rep.
System not heating.	No water flow to heater.	Check for kinds in hoses.
	Water valves not opening.	Check vacuum actuator or cable.
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ProAir 1-Year/12,000-Mile Limited Warranty

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Frigiking

106 ROOF MOUNT CONDENSER

INSTALLATION INSTRUCTIONS

PROAIR LLC

ProAir, LLC
28731 County Road 6
Elkhart, IN 46514
574-264-5494

Revised February 2003

106 ROOF MOUNT INSTALLATION INSTRUCTIONS

The first step is to unpack the condenser and mounting brackets

Remove the two ¼”-20 bolts and the lock washers at each side of the condenser case.

Use the same bolts and lock washers to mount a bracket on each side. Position the brackets as shown with the bolts through the elongated holes. Torque the bolts to 20 ft/lbs.

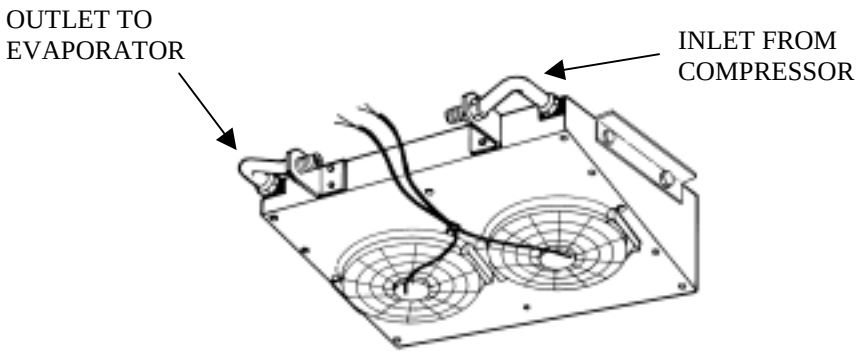
The typical roof mounted unit will look like the illustration at right below. The fans are up and air flow enters through the back side an exits out through the fans. This configuration will give you the greatest efficiency.

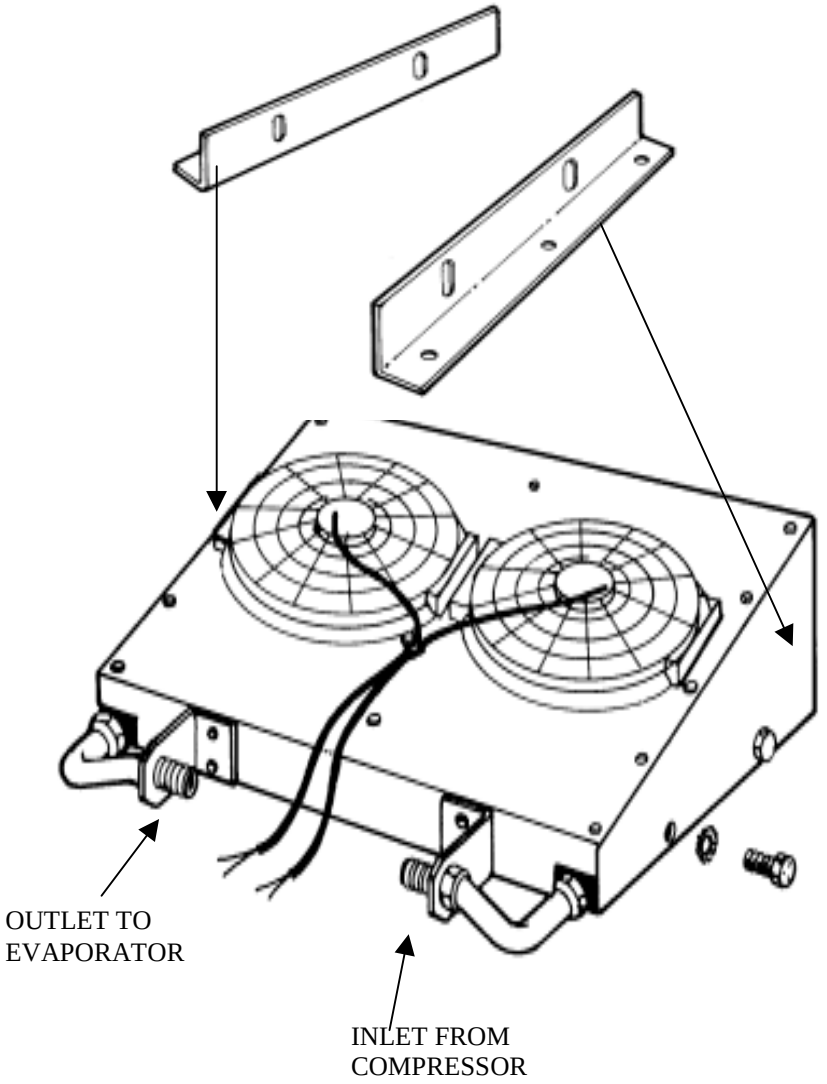
Mount the condenser to the vehicle with three bolts per bracket. Bolts must be Grade 5 or better. Use lock washers on each bolt.

Electrical connections: The blue wires are the positive connection, and the black wires are the negative ground. The blue positive wires must be fused with a circuit protective device capable of handling 15 amps at 13.5 volts.

The fitting on the left is the outlet to the evaporator.
The fitting on the right is the inlet from the compressor.

If the condenser is mounted underneath the vehicle (upside down as shown below). The fitting on the left remains the outlet to the evaporator and the fitting on the right is still the inlet from the compressor.



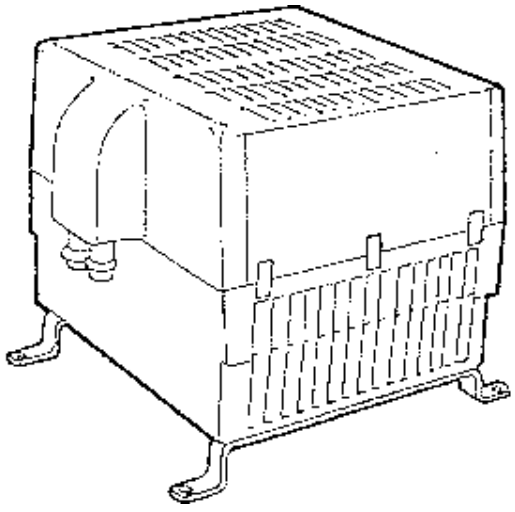


400 SERIES HEATERS

INSTALLATION INSTRUCTIONS

ProAir, LLC
28731 County Road 6
Elkhart, IN 46514
574-264-5494

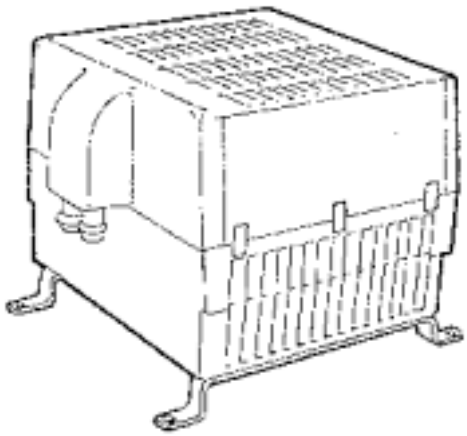
Revised March 2003



400 HEATER INSTALLATION INSTRUCTIONS

CAUTION: BEFORE PUNCHING OR DRILLING ANY HOLE IN PANELS, DASH, FLOORBOARDS OR FIREWALL. BE SURE OTHER SIDE IS CLEAR OF COMPONENTS, LINES, WIRE HARNESSES OR OTHER OBSTRUCTIONS. WHEN ROUTING HOSES, AVOID KINKS, SHARP EDGES, HIGH TEMPERATURE SURFACES AND INTERFERENCE WITH ANY LINKAGE COMPONENTS. USE TY-RAPS, GROMMETS AND HOSE CLAMPS WHERE NEEDED TO KEEP HOSES PROPERLY SECURED TO AVOID FUTURE DAMAGE. REFER TO COMMERCIAL INSTALLATION GUIDELINES.

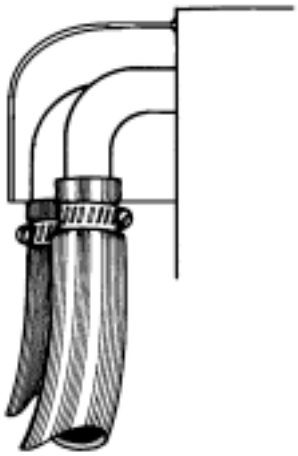
HEATER INSTALLATION: The 400 series heaters are designed to be mounted in a variety of positions. The requirements are a protected area with free air access to intake vents, and space for proper hose routing.

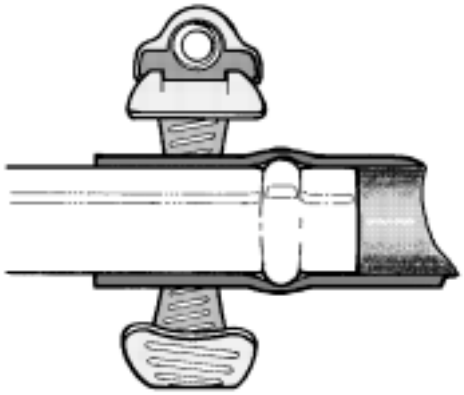


Screw the heater to the floor through the brackets on each side. Be sure the screws do not hit any other components below the floor. Drill two 7/8" diameter holes through the floor in a convenient spot, making sure there are no obstructions on the other side. If possible, the holes should be on the same side as the hose connections on the heater. Install a grommet into place at each hole.

Place a worm gear screw type clamp onto each hose and connect the hoses to the nipples on the heater. Tighten the screw clamps to 30 in/lb. Route the hoses down through the floor holes and seal around the hoses with silicone sealant.

HOSE CLAMP SCREWS SHOULD BE ACCESSIBLE FROM THE FRONT OF THE UNIT.





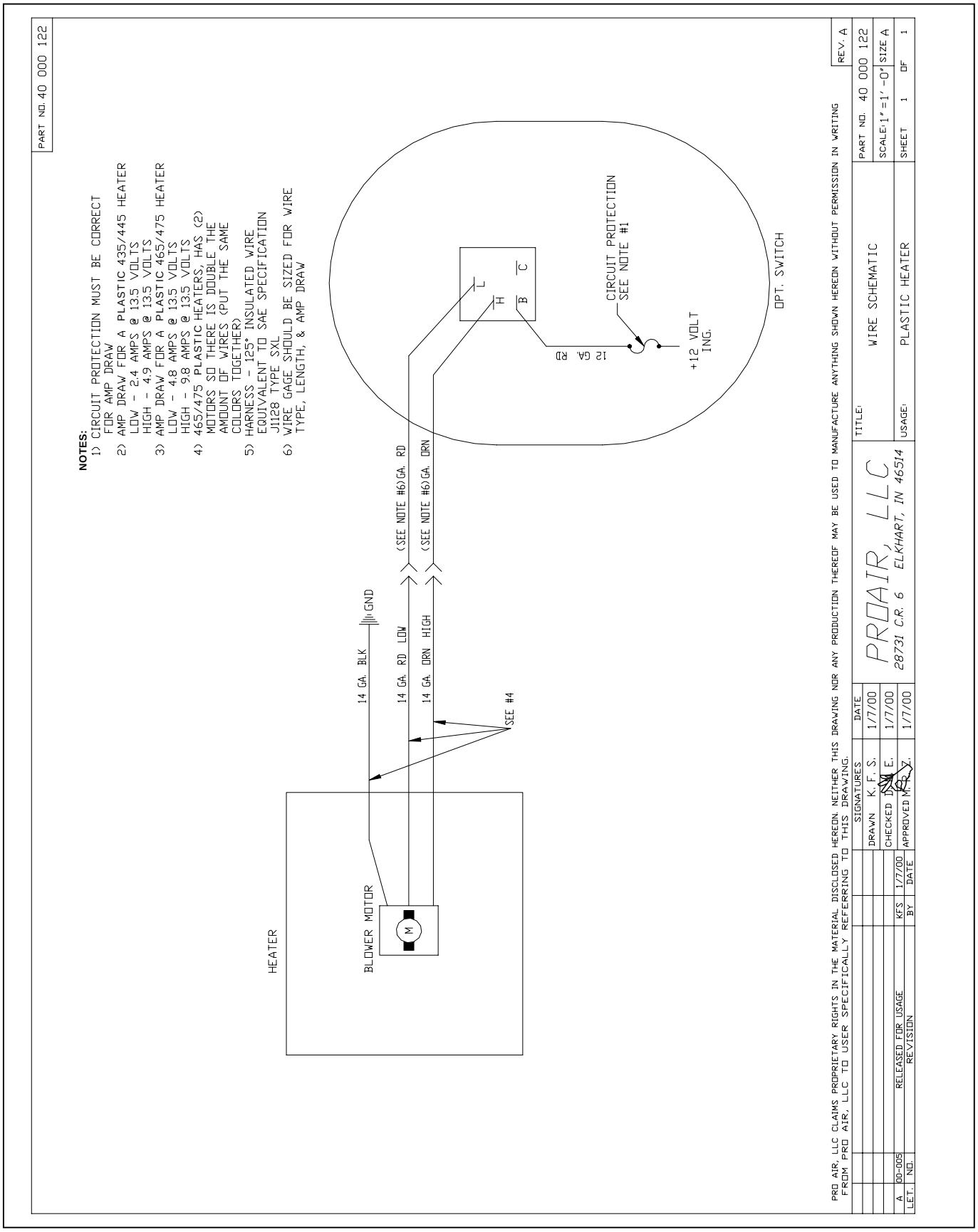
400 HEATER INSTALLATION INSTRUCTIONS

ELECTRICAL CONNECTIONS: Make sure the heater is grounded to the vehicles chassis through direct mounting to vehicle sheet metal with a black ground wire. Remove the paint and/or use a star washer at the attaching point if necessary to make a good connection. Protect the insulation on the wires wherever they go through panels, etc.; by means of grommets or by sheathing on wires. Do no t rely on the wire insulation alone. Make sure the vehicles wires connected to the heater leads are heavy enough to carry the current requirements of the heater. The maximum amperage draw, with the motor running at high speed can be determined by checking the amp draw chart below. The minimum wire gauge should follow set standards. Circuit protection must be added to the power wire. Please refer to the amp draw chart i.e.; fuse, circuit breaker, etc.

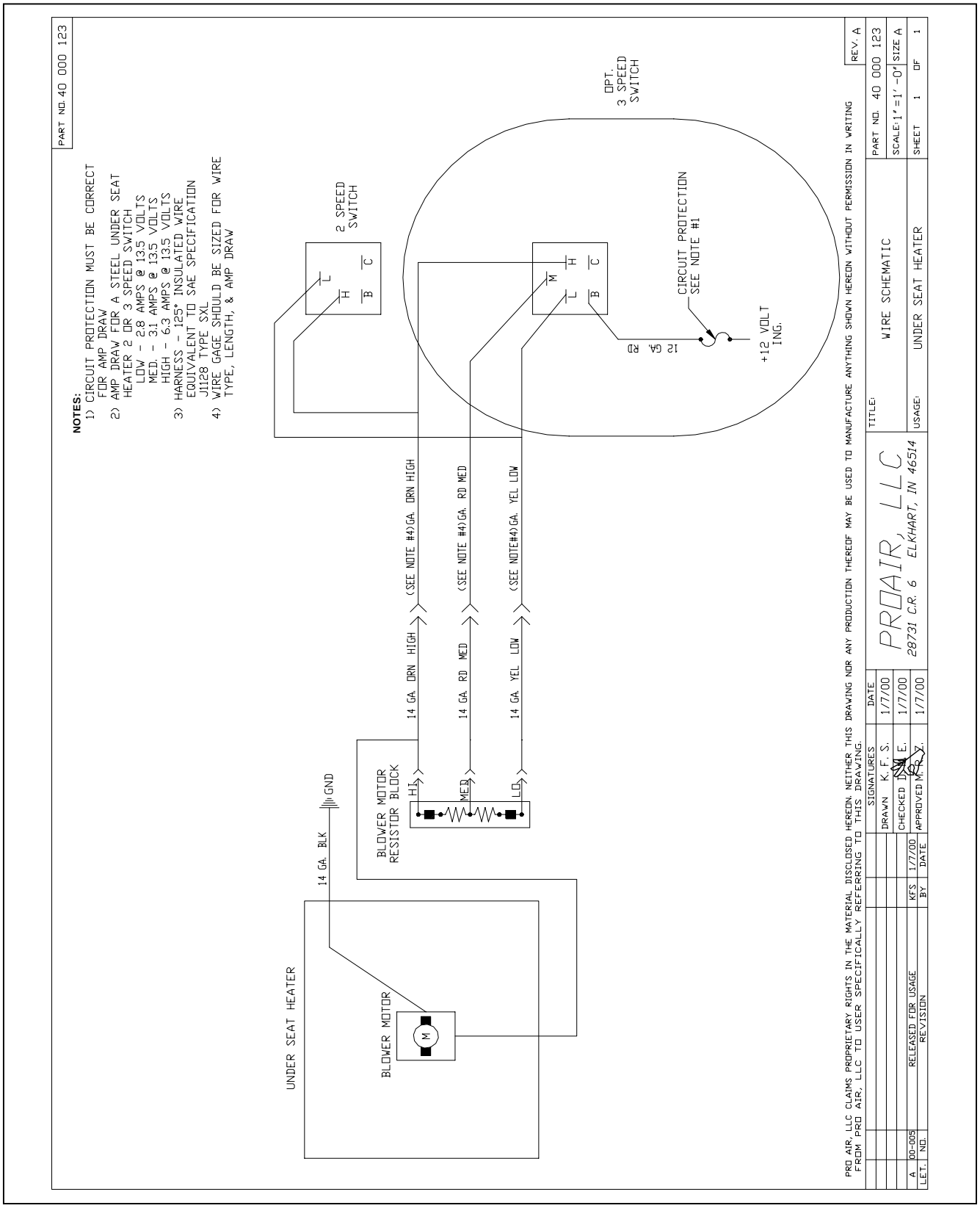
See the following page for wiring schematic.

AMP DRAW @ 13.5V	
420	32
432/435/465	4.9 - HI
465/475	10.0 - HI
455	16.0 - HI
UNDERSEAT HEATER 7.0 - HI	

400 HEATER INSTALLATION INSTRUCTIONS



400 HEATER INSTALLATION INSTRUCTIONS



400 HEATER INSTALLATION INSTRUCTIONS

WATER FLOW: The correct water flow path is out of the engine block into a water control flow valve, (if required), out of the valve and into the lower core fitting, out of the top core fitting and into the engine water pump fitting. If the water control flow valve is marked to indicate flow direction be sure to follow this instruction. If core fittings are at the same level, either fitting can be the inlet. Since the heaters are not equipped with an air bleed valve, air locks can be avoided by holding the outlet end of the discharge hose above the radiator level and run the engine. When a solid stream of coolant is coming out of the hose, connect it to the water pump fitting. Check coolant level in radiator and add more as necessary.
Avoid sharp bends or kinks in the water hose, as they cause restricted water flow rate. Fasten the hoses to the chassis or body at a point close to the heater core fittings so the core nipples do not have to support the weight of the hoses. Use linestakes and ty-raps to support the hoses per the Commercial Guidelines. Make sure the remote control mechanism for the variable flow valve is adjusted to allow the valve operating lever to move from fully open to the fully closed position. ProAir recommends installing some type of water valve i.e.; manual, electric or cable controlled. This will stop the flow of hot water in warm weather.

BOOSTER PUMP REQUIREMENTS:

Required on:

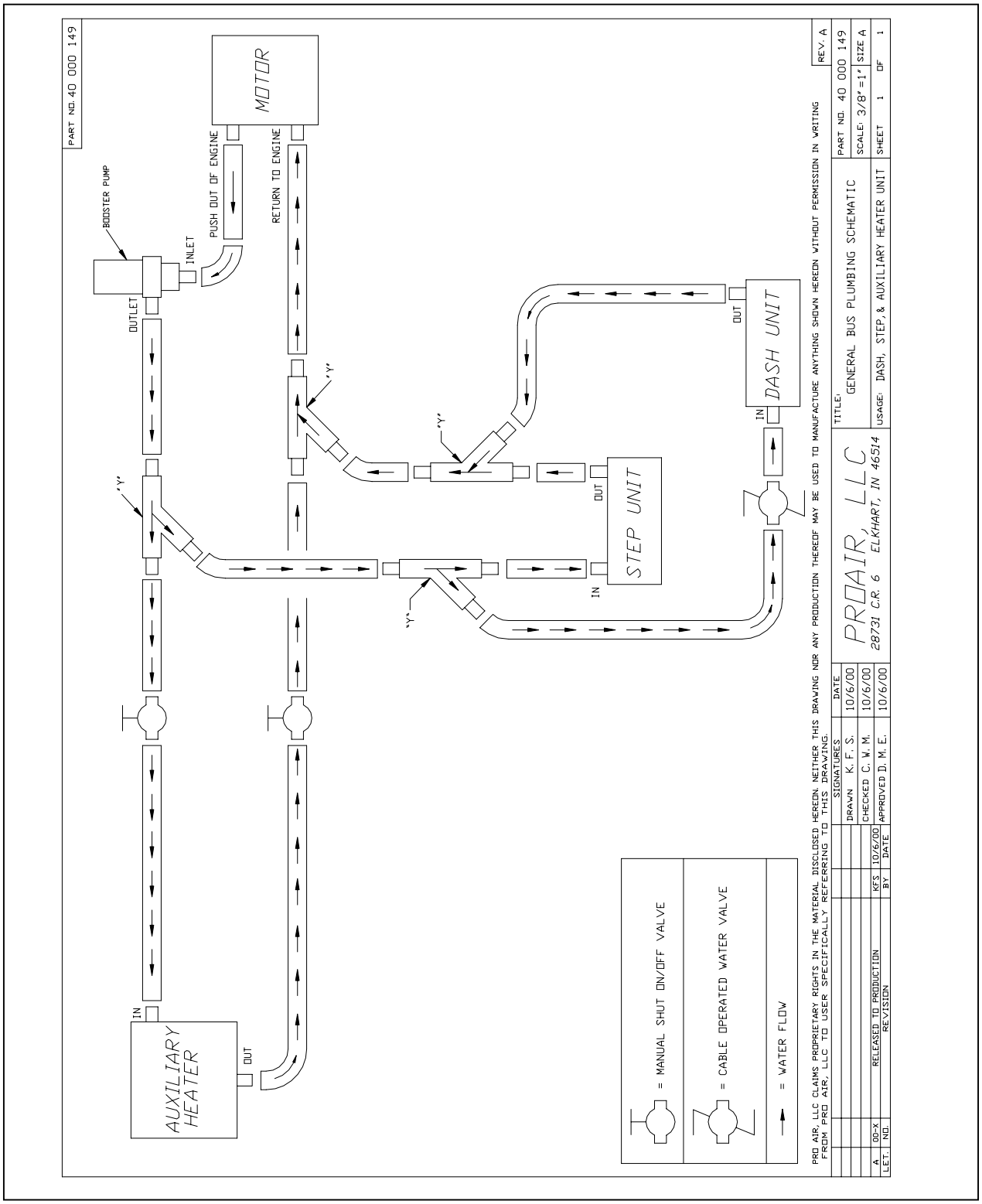
1. All diesel powered vehicles.

2. All gas powered vehicles w/over head unit with hoses longer than 20’.

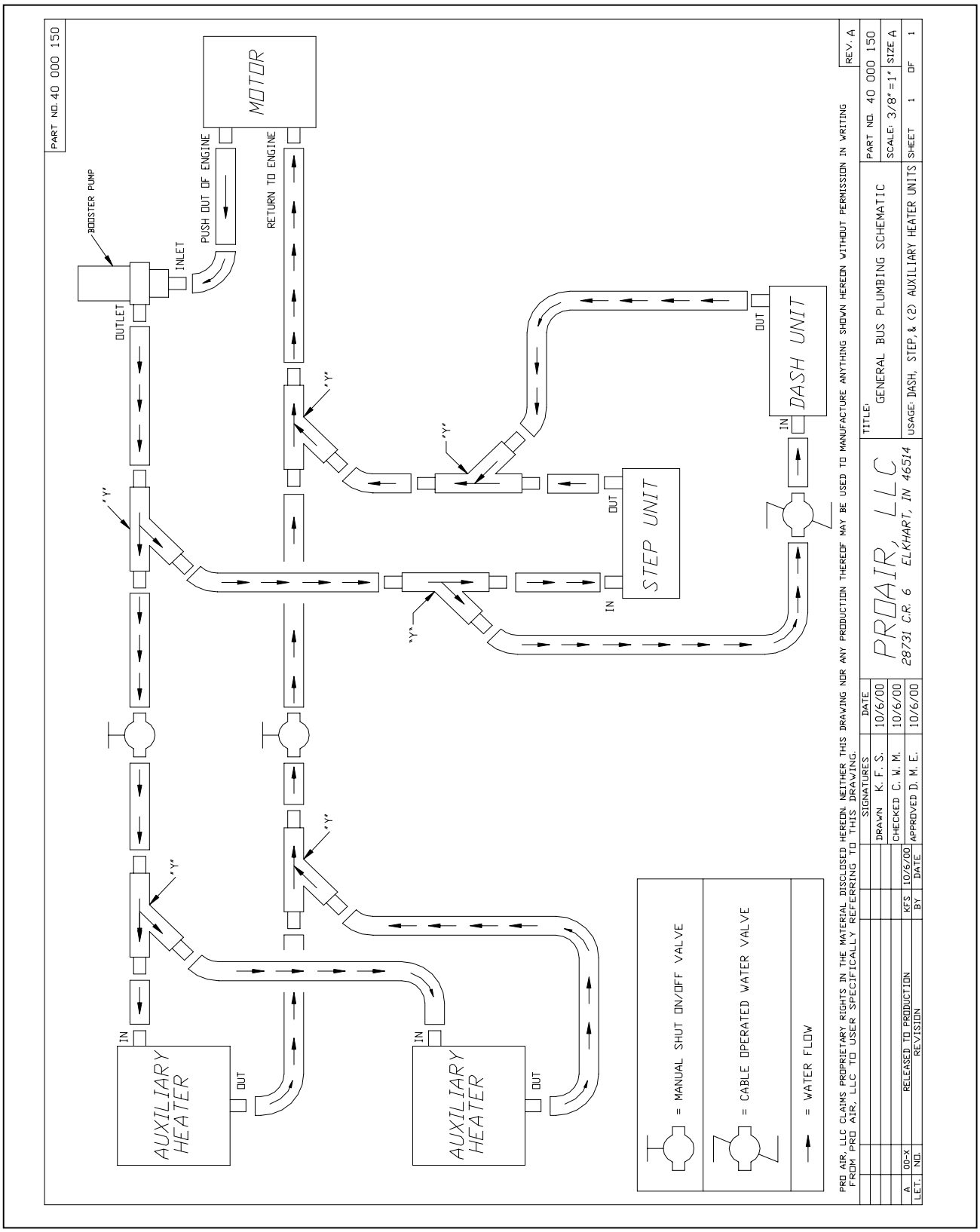
3. All gas powered vehicles w/floor unit with hoses longer then 30’.

See the following page(s) for plumbing schematic(s).

400 HEATER INSTALLATION INSTRUCTIONS



400 HEATER INSTALLATION INSTRUCTIONS



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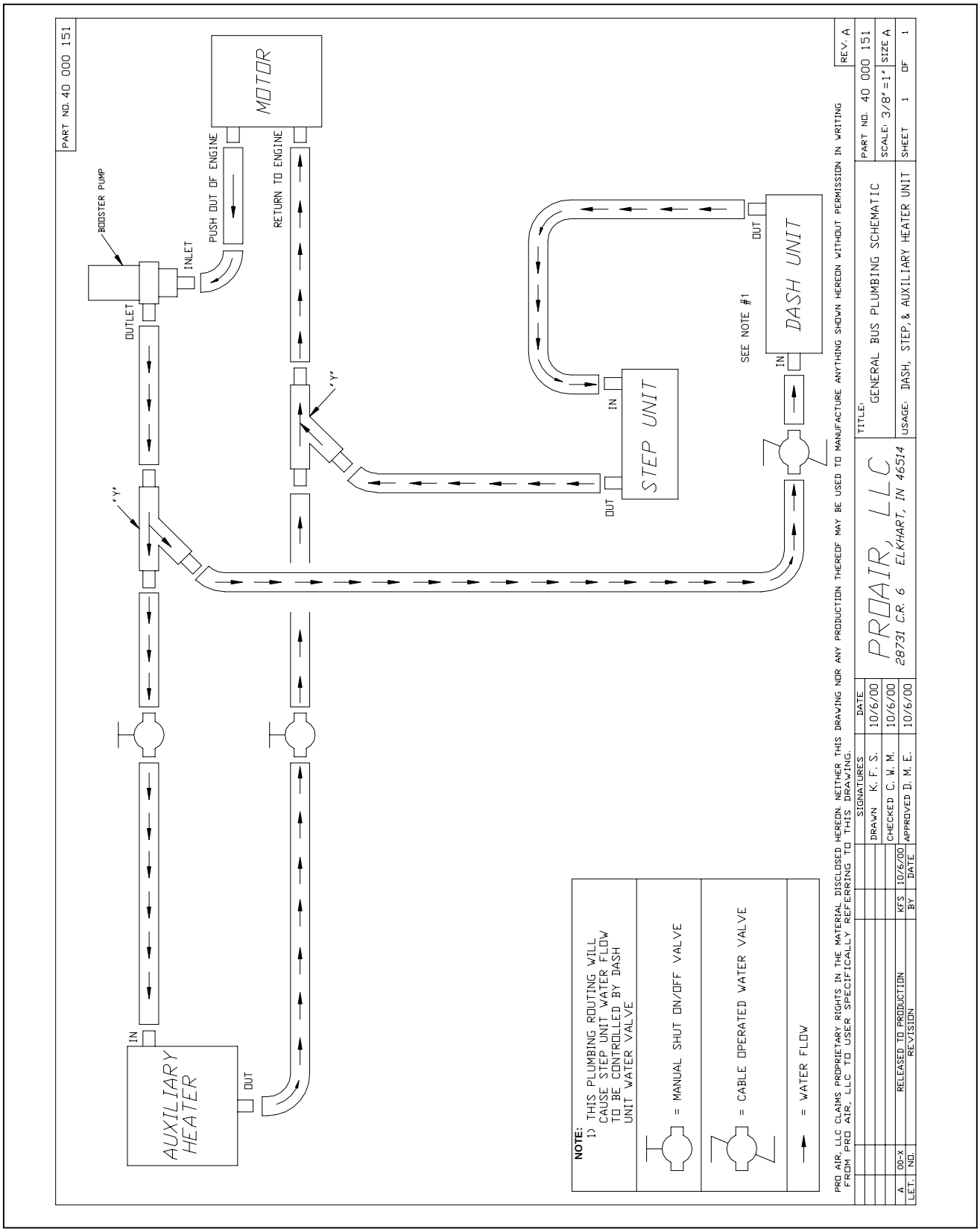

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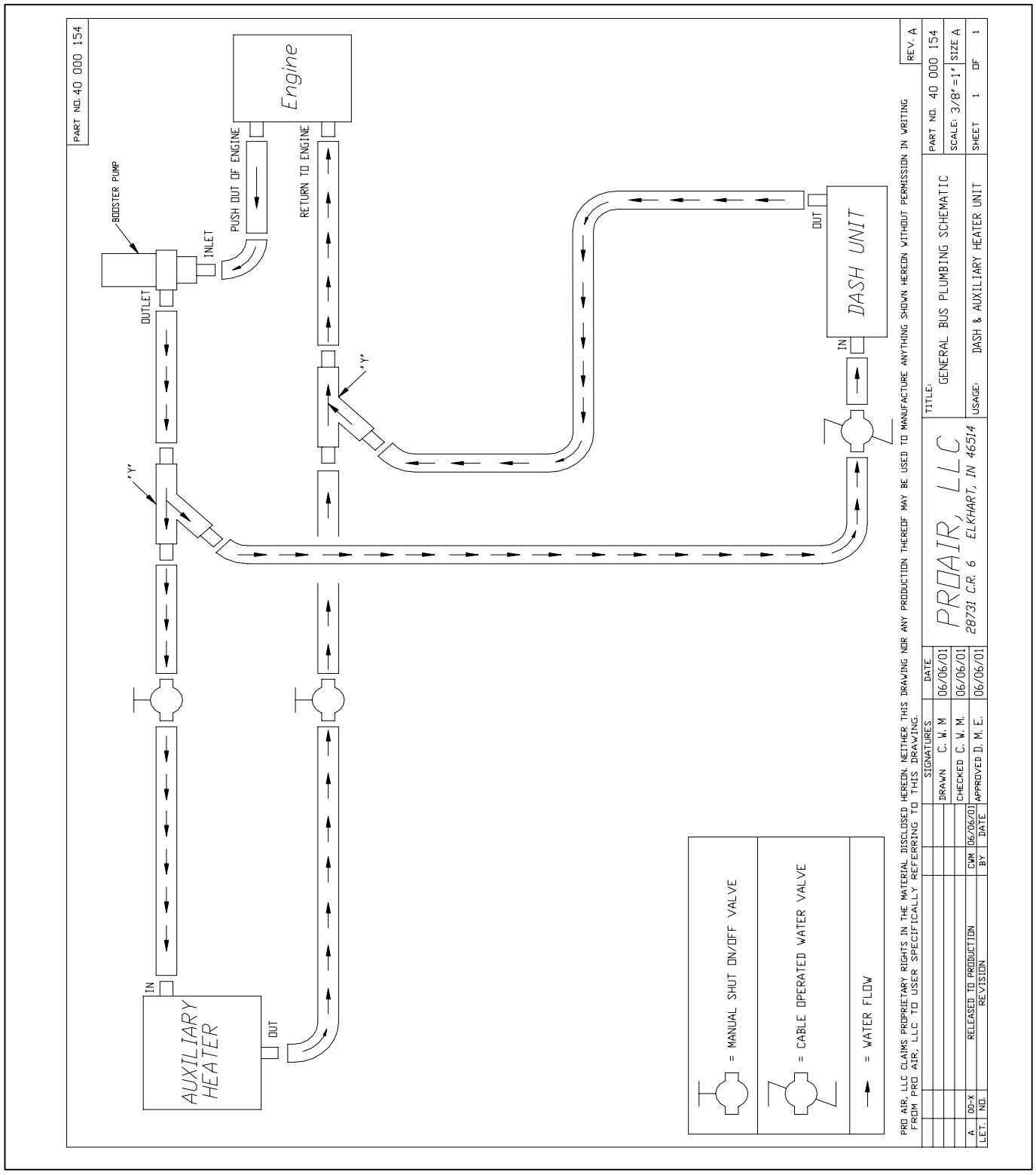

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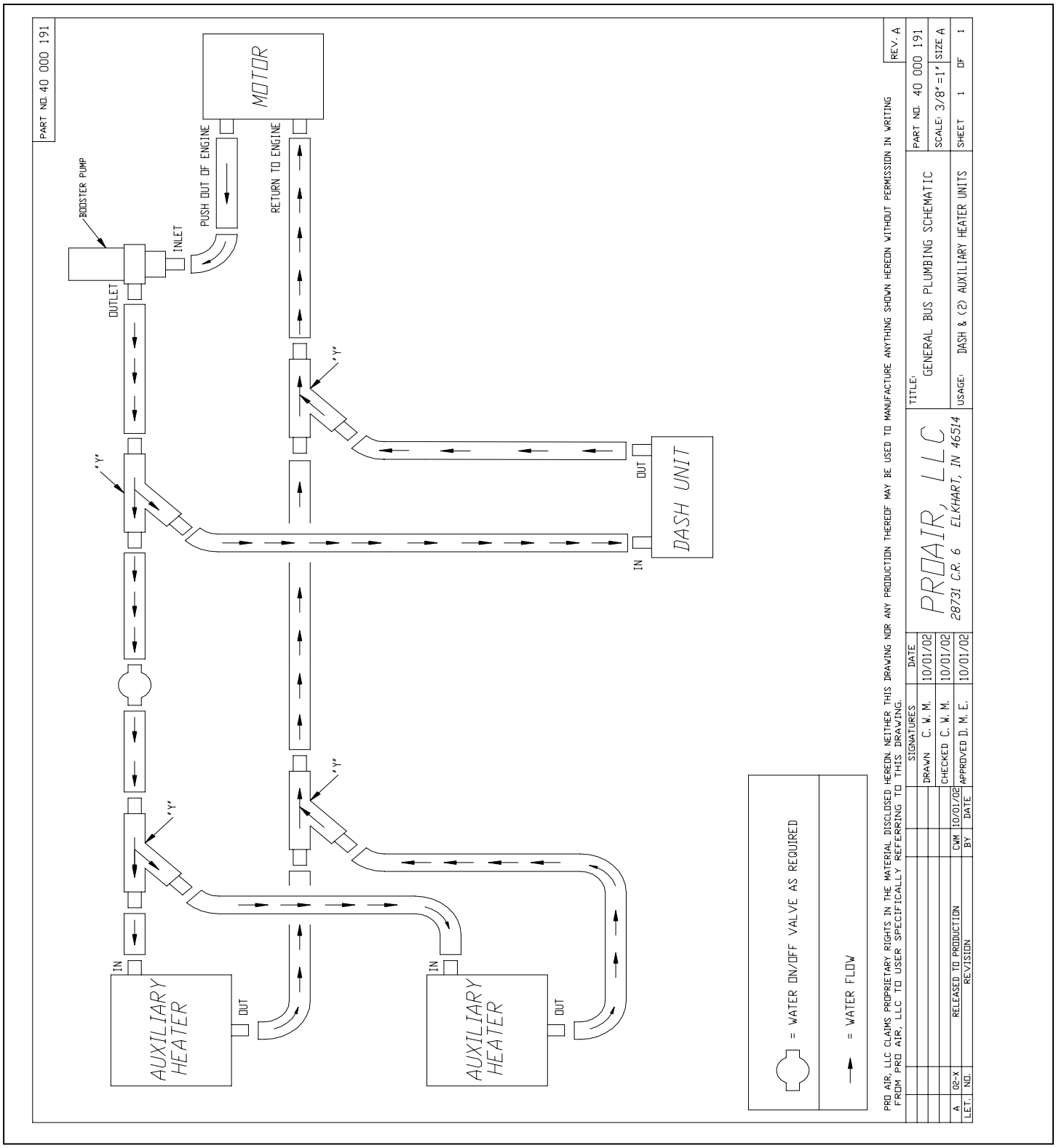
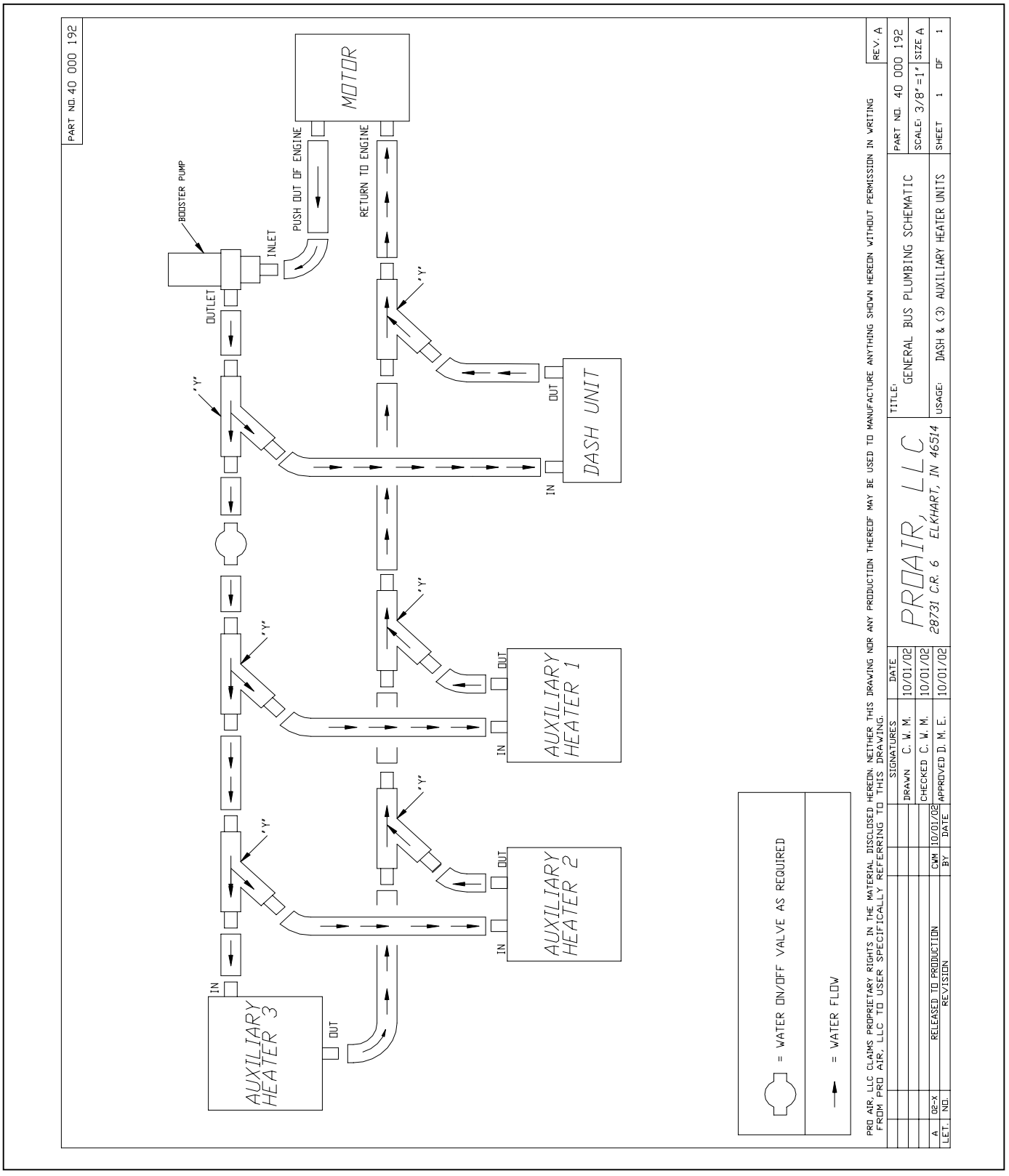


400 HEATER INSTALLATION INSTRUCTIONS



400 HEATER INSTALLATION INSTRUCTIONS

INSTALLATION AND MAINTENANCE CHECKLIST

ELECTRICAL: Make sure the heater is grounded to the vehicle chassis through mounting direct to vehicle sheet metal with ground wire. Remove paint and/or use star washers at attaching point if necessary to make a good connection. Protect insulation on wires going through panels, etc; by means of grommets or by sheathing on wires. Do no rely on the wire insulation alone. Make sure vehicle wires connected to heater leads are heavy enough to carry the current requirements of the heater. Too light a lead wire results in excessive voltage drop thereby reducing the output of the heater motor.

WATER FLOW: Avoid sharp bends or kinks in the water hose, as they cause restricted water flow rates. Fasten the hoses to the chassis or body at a point close to the heater core fittings so the core nipples do not have to support the weight of the hoses.

AIRFLOW: Be sure all air dampers operate freely through extreme positions. Avoid sharp bends or kinks in the duct hoses. Insulate warm air ducts or hoses that are exposed to the ambient air stream. Caulk any cold air leaks at the heater mounting surfaces and clearance holes for hoses, bolts, etc.

GENERAL: If the heater is equipped with an air intake filter, keep it clean. If possible, periodically brush or vacuum the core face. A clean core is a must for maximum heat transfer. Prior to the heating season, check blower operation on high and low speeds. Check control operations. Check water and air hoses. Replace any worn parts. If replacing water hoses, prevent air locks by bleeding as outlined above.

PROAIR LLC

400 HEATER INSTALLATION INSTRUCTIONS

ProAir 1-Year/12,000-Mile Limited Warranty

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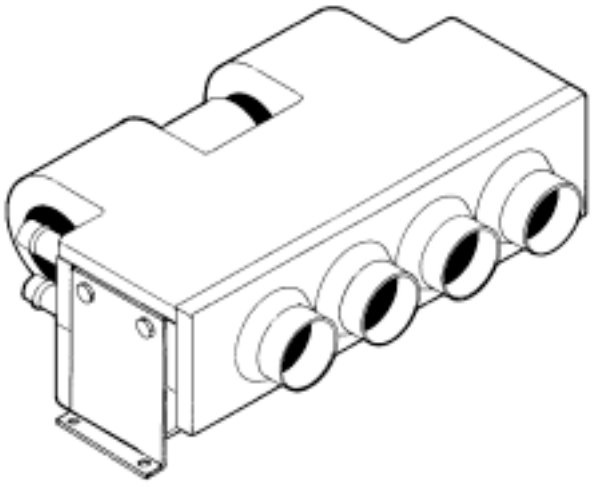
901 HEATERS

INSTALLATION INSTRUCTIONS

ProAir, LLC
28731 County Road 6
Elkhart, IN 46514
574-264-5494

Revised March 2003



PROAIR LLC

901 HEATER INSTALLATION INSTRUCTIONS

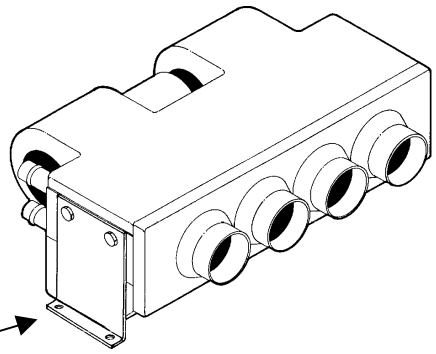
CAUTION: BEFORE PUNCHING OR DRILLING ANY HOLES IN PANELS, DASH FLOORBOARDS OR FIREWALL,
BE SURE OTHER SIDE IS CLEAR OF COMPONENTS, LINES, WIRE HARNESSES OR OTHER OBSTRUCTIONS. WHEN ROUTING HOSES, AVOID KINKS, SHARP EDGES, HIGH TEMPERATURE SURFACES AND INTERFERENCE WITH ANY LINKAGE COMPONENTS. USE TY-RAPS, GROMMETS, AND HOSE CLAMPS WHERE NEEDED TO KEEP HOSES PROPERLY SECURED TO AVOID FUTURE DAMAGE. REFER TO COMMERCIAL INSTALLATION GUIDELINES.

UNIT MOUNTING: The 901 heater is designed to be positioned either horizontally or vertically. A sturdy structure of wood or steel must be used for mounting purposes. Use the appropriate fasteners for securing the unit to the structure, i.e. wood screws or a wood structure or metal screws for a steel structure. Screw the heater to the structure through the mounting brackets at each end of the case.

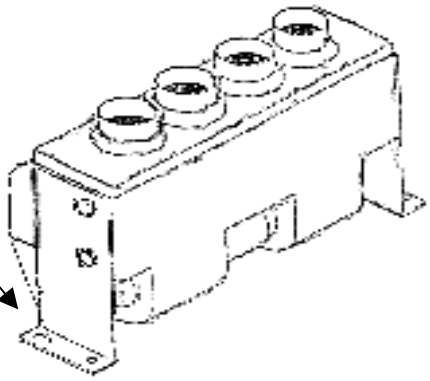
This heater can be ducted with duct hoses and louvers. A free blow configuration may also be used with a variety of noses.

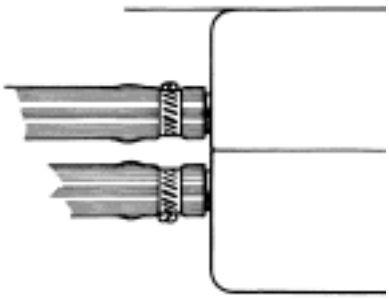
Options:

1. No nose, free blow.
2. Four 2 ½" outlets.
3. Louvered bezel.
4. If unit is covered… w/cover, wall, etc. air intake is required "15 sq/in minimum".

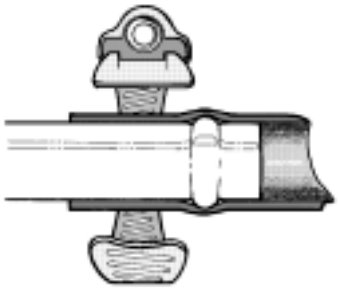


SCREW THROUGH MOUNTING BRACKETS HERE, OR HERE ON VERTICAL MOUNT UNIT.





HEATER HOSE CONNECTIONS: Place a worm gear clamp onto each heater hose and slide the hoses onto the nipples. Make sure the hoses are pushed all the way on, up to the case. Tighten the clamps to 30 in/lbs.

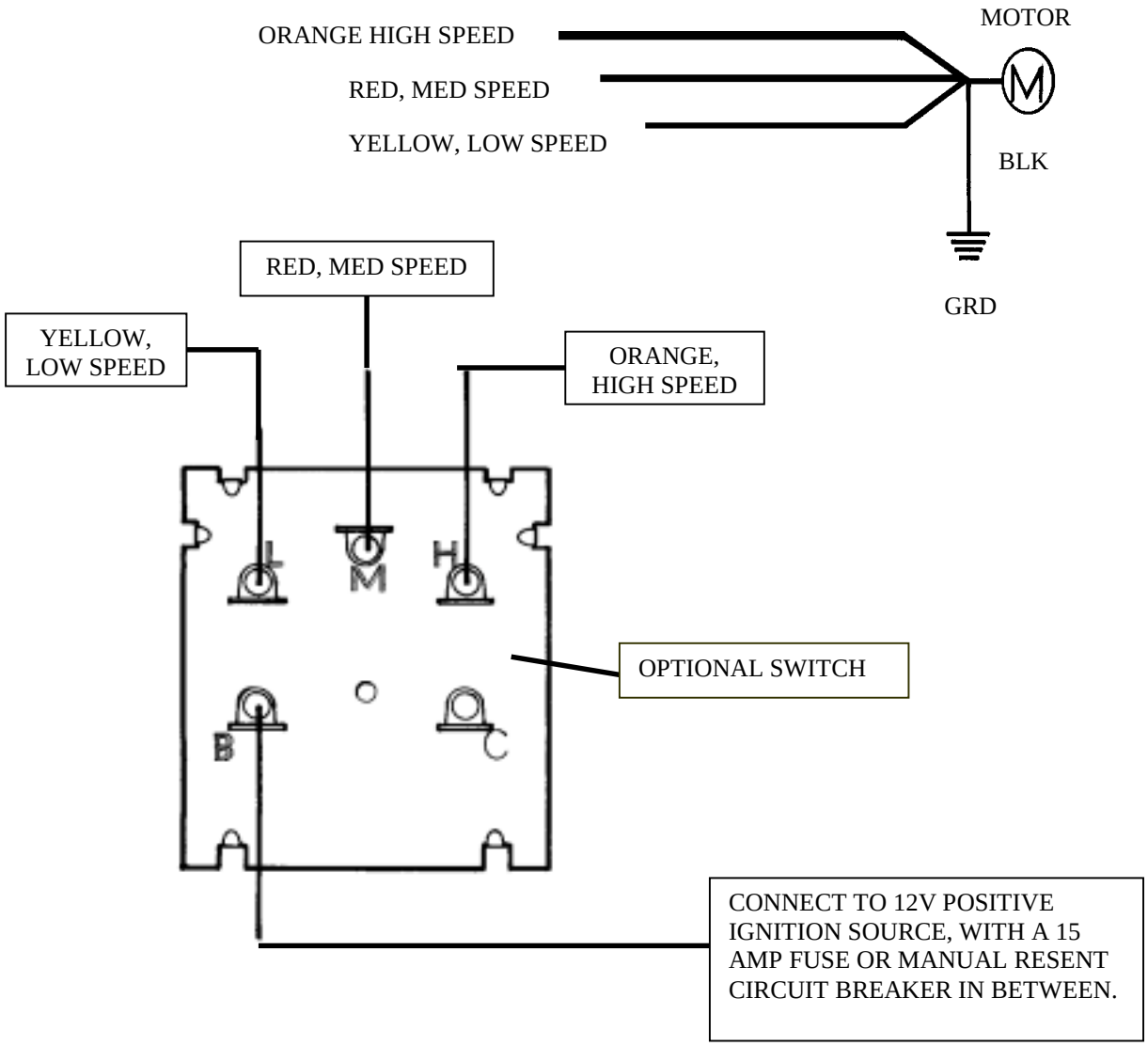


901 HEATER INSTALLATION INSTRUCTIONS

ELECTRICAL CONNECTIONS:
The 901 heaters have a four wire harness from the motor. The black wire is for the ground, the orange wire is high speed, the red wire is medium speed , and the yellow wire is low speed.

If you are installing the optional switch, connect the wires as shown in the illustration. You must also install a 15amp fuse or manual reset circuit breaker in the wire between the B post on the switch and the IGNITION SOURCE.

Amp Draw @ 13.5 volts:
L=3a
M=6a
H=9a

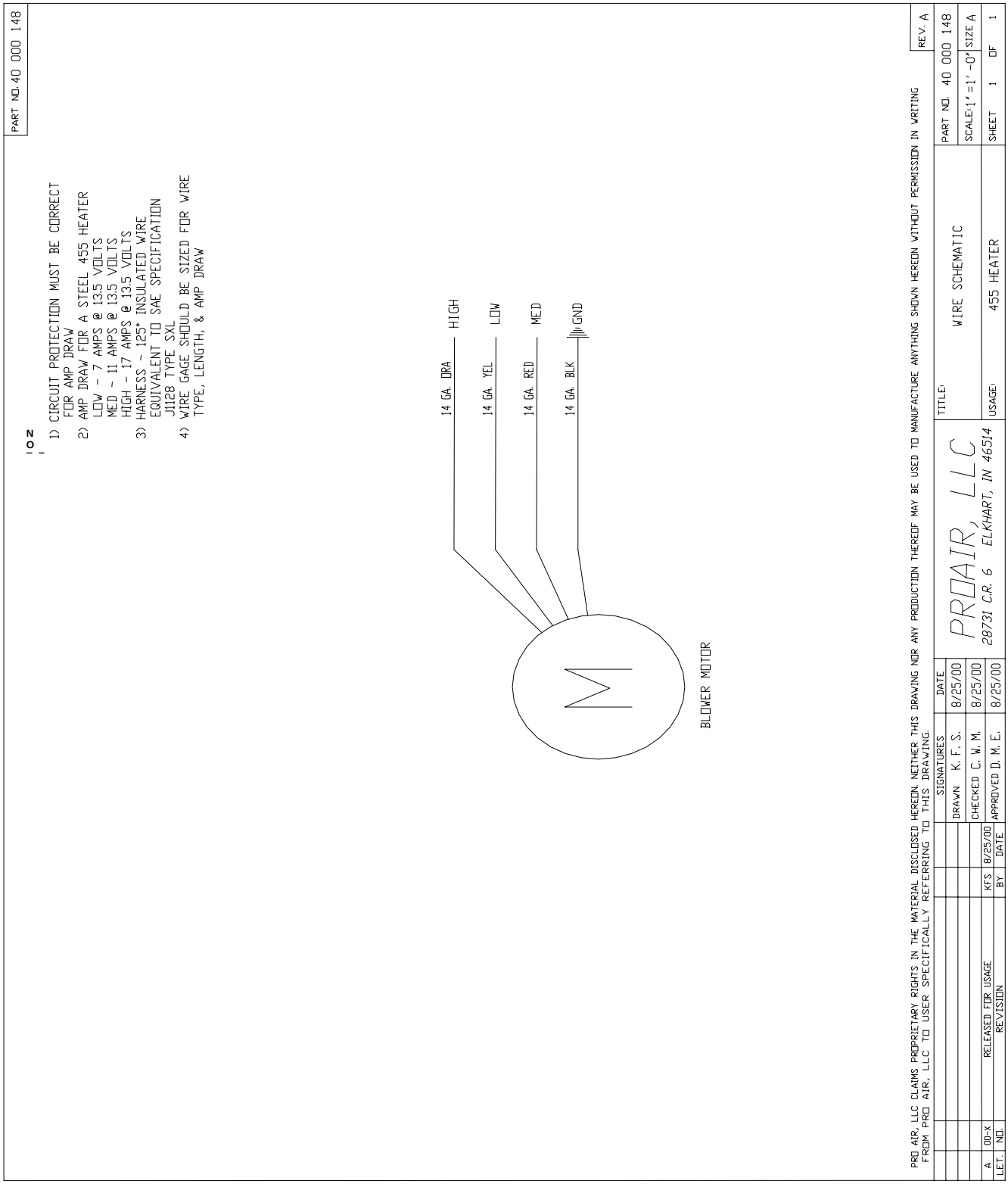


901 HEATER INSTALLATION INSTRUCTIONS

ELECTRICAL CONNECTIONS: Make sure the heater is grounded to the vehicle chassis through direct mounting to vehicle sheet metal with a black ground wire. Remove the paint and/or use a star washer at the attaching point if necessary to make a good connection. Protect the insulation on the wires wherever they go through panels, etc; by means of grommets or by sheathing on wires. Do not rely on the wire insulation alone. Make sure the vehicle wires connected to the heater leads are heavy enough to carry the current requirements of the heater. The maximum amperage draw, with the motor running at high speed can be determined by checking the amp draw chart below. The minimum wire gauge should follow set standards. Circuit protection must be added to the power wire. Please refer to the amp draw chart i.e.; fuse, circuit breaker, etc.

See next page for Wiring Schematic.

901 HEATER INSTALLATION INSTRUCTIONS



901 HEATER INSTALLATION INSTRUCTIONS

WATER FLOW: The correct water flow path is out of the engine block into a water control flow valve, (if required), out for the valve and into the lower core fitting, out of the top core fitting and into the engine water pump fitting. If the water control valve is marked to indicate flow direction be sure to follow this instruction. If core fittings are at the same level, either fitting can be the inlet. Since the heaters are not equipped with an air bleed valve, air locks can be avoided by holding the outlet end of the discharge hose above the radiator level, and run the engine. When a solid stream of coolant is coming out of the hose connect it to the water pump fitting. Check coolant level in radiator and add more as necessary. Avoid sharp bends or kinks in the water hose, as they cause restricted water flow rates. Fasten the hoses to the chassis or body at a point to the heater core fittings so the core nipples do not have to support the weight of the hoses. Use linestakes and ty-raps to support the hoses per the Commercial Guidelines. Make sure the remote control mechanism for the variable follow valve is adjusted to allow the valve operating lever to move from fully open to the fully closed position. ProAir recommends installing some type of water valve i.e.; manual, electric, or cable controlled. This will stop the flow of hot water in warm weather.

BOOSTER PUMP REQUIREMENTS

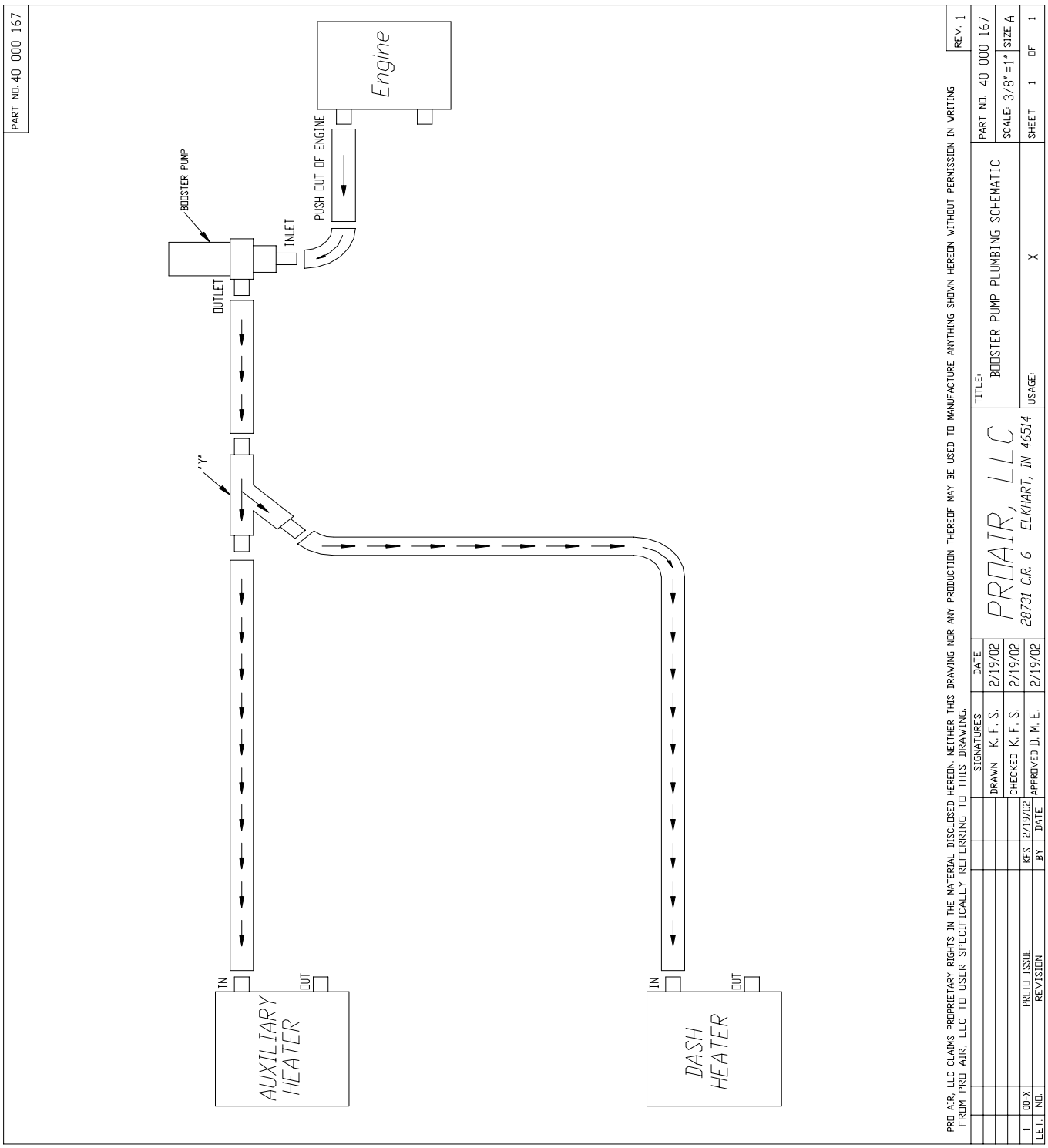
1. All diesel powered vehicles.

2. All gas powered vehicles w/overhead unit with hoses longer than 20’.

3. All gas powered vehicles w/floor unit with hoses longer than 30’.

See next page for Plumbing Schematic.

901 HEATER INSTALLATION INSTRUCTIONS



PROAIR LLC

901 HEATER INSTALLATION INSTRUCTIONS

ProAir
1-Year/12,000-Mile
Limited Warranty

1. ProAir warrants every heating and cooling unit produced by ProAir and used in a commercial or specialty vehicle to be free from defects in material and workmanship under normal use for a period of twelve (12) months or twelve thousand (12,000) miles, whichever comes first.

2. If a repair or adjustment under the warranty is required, the product should be taken to an authorized ProAir service center or, if possible, taken to the original installer. The owner's registration certificate should be presented.

3. **The repairing service center must contact ProAir by calling 574 264 5494 or 800 338 8544, asking for the customer service department and describing the type of warranty repair needed. If warranty parts are needed, ProAir reserves the right to replace them. No warranty claims will be paid without the return of defective parts to ProAir.**

4. If the ProAir service center is too far away, the customer may find a repairing facility nearby and contact ProAir. We will attempt to allow the repair facility authorization to address the concern.

5. This warranty does not cover any product which has been subject to misuse, neglect, alteration, accident, improper installation, or improper maintenance, or which has been repaired outside of an authorized ProAir service center in any way so as to affect adversely its performance or reliability. This warranty does not cover material or labor used in normal maintenance services or the replacement of service items. Normal wear of service items shall not be considered defects under this warranty. This warranty does not cover customer lost time, vehicle towing, vehicle rental, or lodging.

6. This warranty does not include consequential damages, and ProAir shall not be responsible for any such damages. ProAir does not make and does not authorize any person to make for it any warranty other than the foregoing warranty. Such other warranties, if any as may be imposed or implied by law, are limited in duration to the duration of this written warranty.

7. Some states do not allow limitations on how long an implied warranty lasts, nor do they allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. This warranty gives specific legal rights, and other rights which vary from state to state.

8. This warranty does not cover loss of refrigerant unless the loss is a direct result of a defect covered by this warranty.

CONCERNS:

- BLOWERS
- HEATING
- COOLING

AIRFLOW/BLOWER CONCERNS

BLOWER MOTOR INOPERATIVE

1. All speeds:
    a. Check fuse under the hood by the battery.
    b. If fuse is good, check for power through the relay. If no power at the relay, replace the fuse.
    c. Check switch connections.
    d. Check switch for 12 volts at corresponding terminals: L-low, M-medium, H-high. If no power, replace switch.
    e. Check ground wire at rear unit; it must be tight and not corroded.
    f. Check harness for power at rear connector plug: red-low, yellow-medium, orange-high. All should light a 12 volt test light. If not, check wiring harness for cuts, tears, burns, etc. Repair or replace as necessary.
    g. If power is present at plug, replace blower motor.

2. One or more speeds inoperative: .
    a. Check wire connections at switch.
    b. Check switch for 12 volts at terminal of non-functioning speed: L-low, M-medium, H-high. If no power, replace blower switch.
    c. Check for power at rear connector. If no power is found on corresponding plug, check for shorts or burns in wiring harness. If this is alright, replace blower motor.

MOST COMMON BLOWER PROBLEMS

1. Wires not on blower switch properly.
2. Poor ground.
3. Defective blower motor.
4. Burnt, cut or torn wiring.

BLOWER MOTOR NOISE

1. Blower wheels misaligned or broken.
2. Screw or other foreign object in blower housing or duct hose area.
3. Duct hose restricted behind sidewall.

HEATING CONCERNS

REAR UNIT DOES NOT HEAT, BUT DASH UNIT DOES HEAT

1. Locate the manual water valves and make sure they are open.

2. Check coolant levels

3. If unit still does not heat, check for kinks in heater hoses.

4. If heater hoses look all right, you must bleed air from rear system. This is done by crimping off OEM heater line before it enters OEM heater core. Run vehicle on fast idle (1500 RPM) or at highway speeds to bleed air from system.

NEITHER REAR NOR FRONT UNITS HEAT

1. Check coolant levels.

2. Check thermostat for proper operation.

COMMON PROBLEMS

1. Dash selector switch is in wrong mode.

2. Air in system due to low coolant.

3. Low coolant.

4. Kinked heater hose.

5. Defective water valve.

6. Closed manual water valves.

COOLING CONCERNS CHECK LIST

Rear Unit Does Not Cool, But Dash Unit Does Cool:

1. Check condenser fans for proper operation.

2. If fans work properly, check refrigerant charge amount with gauges and appropriate charging chart.

3. If all of the above are good, replace the expansion valve and recharge the A/C system.

Neither Rear nor the Front Unit Cools:

1. Check clutch on compressor for proper engagement.

2. Check electrical system.

3. If these are all right, check refrigerant charge with gauges and charging chart.

4. If there is no charge, perform leak test. If leak is found, repair.

5. If the units still do not work, call ProAir.

Common Problems:

1. Loss of refrigerant (defective o-ring, fitting, or loose connection).

2. Defective compressor.

3. Stuck expansion valve.

4. Defective pressure switch..

REPAIR PROCEDURES:

- REMOVE AND REPLACE HEAT COIL
- REMOVE AND REPLACE EVAPORATOR
- REMOVE AND REPLACE THERMOSTAT
- REMOVE AND REPLACE WATER VALVE
- REMOVE AND REPLACE BLOWER

REMOVE AND REPLACE INSTRUCTIONS

HEATER COILS

REMOVE:

1. Remove the screws and or clips holding the case top/cover in place.
2. Crimp off the hoses close to the heater.
3. Loosen the worm gear clamps and pull the hoses off the nipples.
4. If applicable, take out the screws holding the coil in place.
5. Remove the coil.

REPLACE:

1. Reverse the above procedure.
2. Tighten the worm gear clamps to 30 in/lb.

REMOVE AND REPLACE INSTRUCTIONS

EVAPORATOR COILS

REMOVE:

1. Connect a refrigerant recapturing / recycling machine to the vehicle service valves and recapture the refrigerant from the system.
2. Remove the screws and/or clips holding the case front top bracket in place.
3. Remove the refrigerant tape around the coil fittings at the hose.
4. Disconnect the liquid line with 5/8” and 3/4” open end wrenches.
5. Disconnect the suction hose with 7/8” and 1 1/16” open end wrenches.
6. Remove the coil from the case bottom.

REPLACE:

1. Reverse the above procedure.
2. Torque the hose fittings according to the torque chart.
3. Recharge the system with oil and refrigerant according to current charging procedures.

REMOVE AND REPLACE INSTRUCTIONS

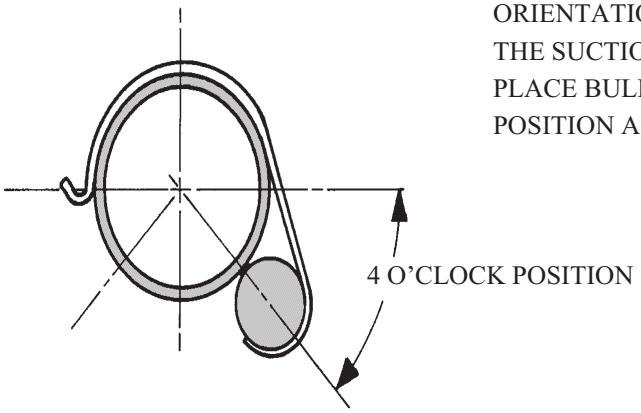
THERMAL EXPANSION VALVES

REMOVE:

1. Connect a refrigerant recapturing / recycling machine to the vehicle and evacuate the system.
2. Remove the refrigerant tape covering the valve and coil fitting.
3. Disconect the liquid line from the expansion valve with a 5/8" and 3/4" open end wrench.
4. Remove the bulb clamp from the coil suction tube.
5. Remove the expansion valve from the coil with 5/8"and 7/8" open end wrench.

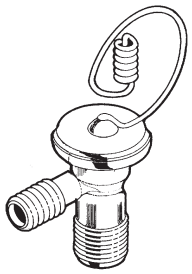
REPLACE:

1. Reverse the above procedure.
2. Tighten the fittings to 12 ft/lb.



END VIEW OF TUBE / CLAMP / BULB ORIENTATION

ORIENTATION OF BULB CLAMP ON THE SUCTION TUBE IS CRITICAL. PLACE BULB AT THE FOUR O'CLOCK POSITION AS SHOWN.



REMOVE AND REPLACE INSTRUCTIONS

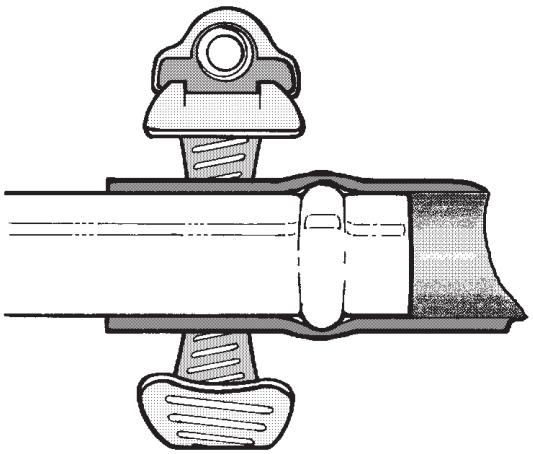
WATER VALVES

REMOVE:

1. Loosen the radiator cap to relieve system pressure.
2. Crimp off the hoses on each side of the valve.
3. Loosen the worm gear clamps on each hose and pull the valve from the hoses.

REPLACE:

1. Reverse the above procedure.
2. Tighten the worm gear hose clamps to 30 in/lb.



ILLUSTRATED ABOVE IS THE CORRECT POSITIONING OF
THE HOSE ON THE NIPPLE AND THE WORM GEAR CLAMP.

REMOVE AND REPLACE INSTRUCTIONS

BLOWER ASSEMBLIES

REMOVE:

1. In most instances you will have to remove the unit cover first. Take out the screws holding the cover in place.

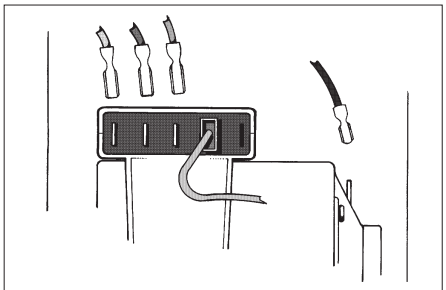
2. Disconnect the wire harness at the motor plug.

3. Unscrew the blower retainer bracket from the unit case.

4. Remove any other screws or bolts holding the blower assembly in place.

REPLACE:

Reverse the above procedure.



WIRE CONNECTIONS @ BLOWER

CONDENSER FANS:

REMOVE:

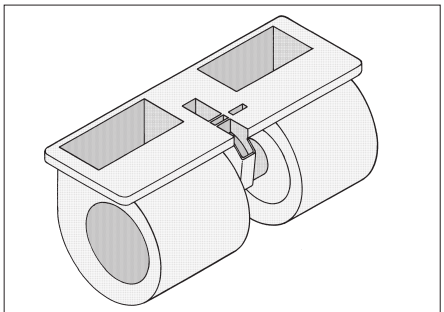
1. Remove the fasteners holding the fan motors in place.

2. Disconnect the wire harness from the motor.

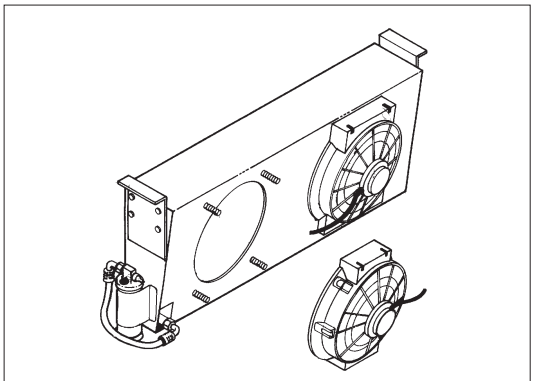
3. Remove the fan motor. Note motor orientation.

REPLACE

1. Reverse the above procedure.



TYPICAL BLOWER ASSEMBLY



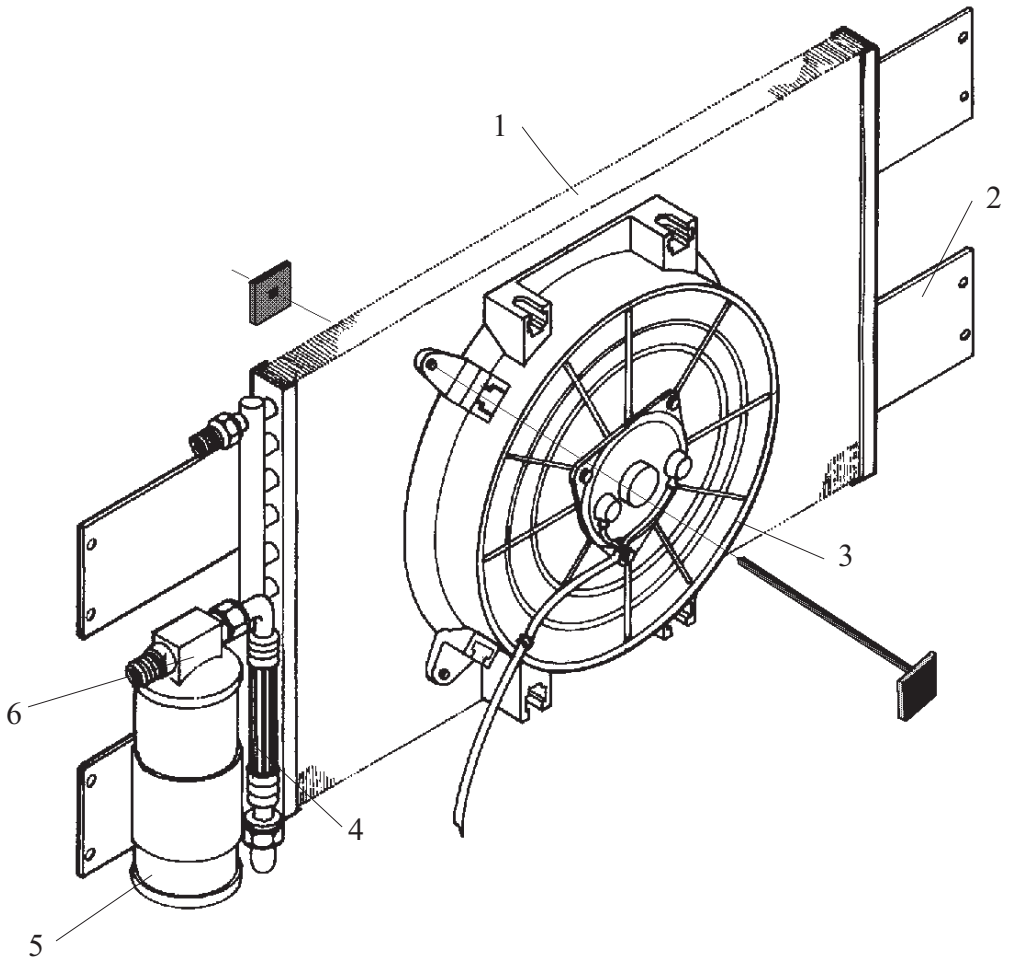
CONDENSER WITH ONE FAN REMOVED

PARTS BY UNIT LINE:

- CONDENSERS
- HEATERS
- COMBINATION UNITS

CONDENSERS:

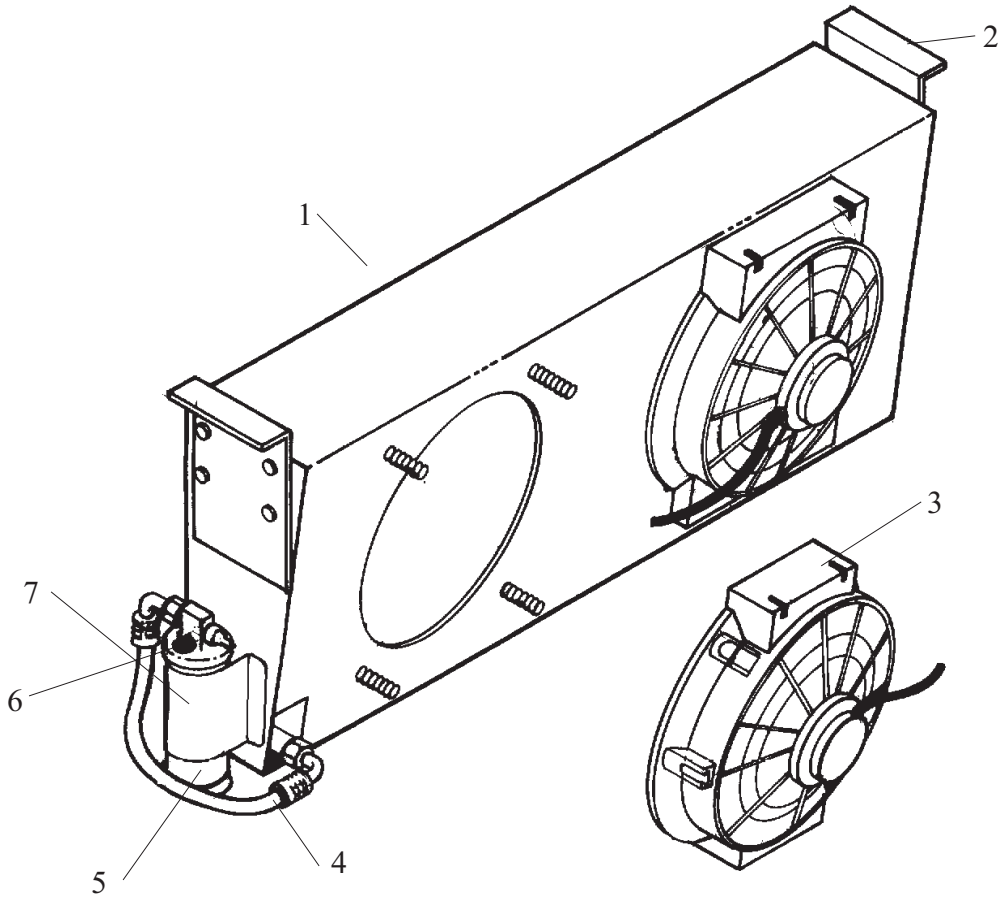
104 CONDENSER, PART NUMBER 60 000 699



1	03 000 034	Coil, condenser
2	06 000 099	Mounting bracket
3	11 000 076	Fan, 16"
4	60 000 397	Hose assembly
5	05 000 099	Drier bottle
6	01 000 070	Switch, high-low pressure
7	02 000 110	Pull tie kit
8	06 000 144	Dryer bottle bracket
9	02 000 097	Fan mounting bracket

COMMERCIAL PRODUCTS SERVICE MANUAL

frigiking SS 105 CONDENSER, PART NUMBER 50 000 590



1	03 000 025	Coil, condenser
2	06 000 336	Mounting bracket
3	11 000 147	Fan, 11" puller, water proof
4	60 000 398	Hose assembly
5	05 000 099	Drier bottle
6	01 000 070	Switch, high-low pressure
7	06 000 335	Mounting bracket, dryer bottle, stainless steel

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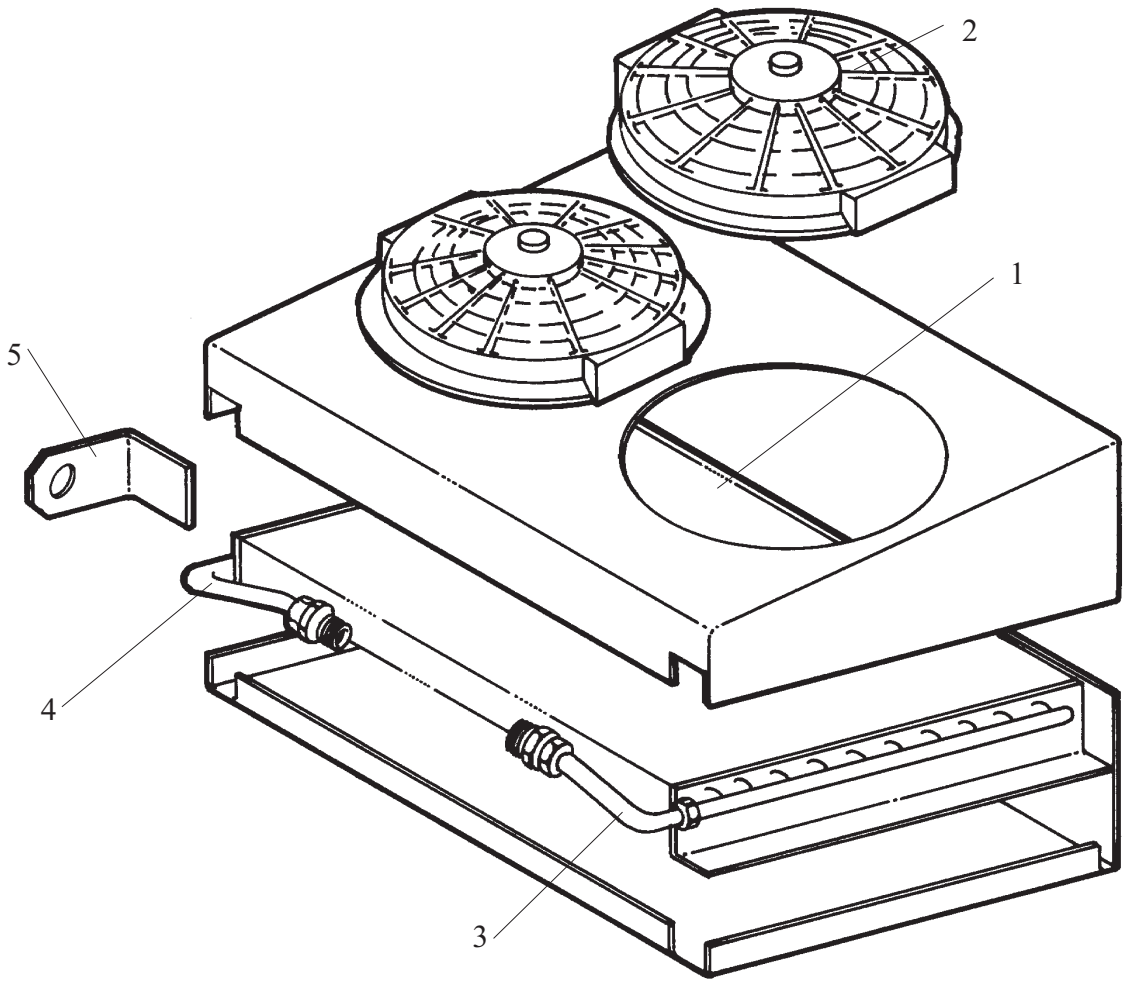
COMMERCIAL PRODUCTS SERVICE MANUAL

106 ROOF-TOP CONDENSER, PART NUMBER 31 000 011



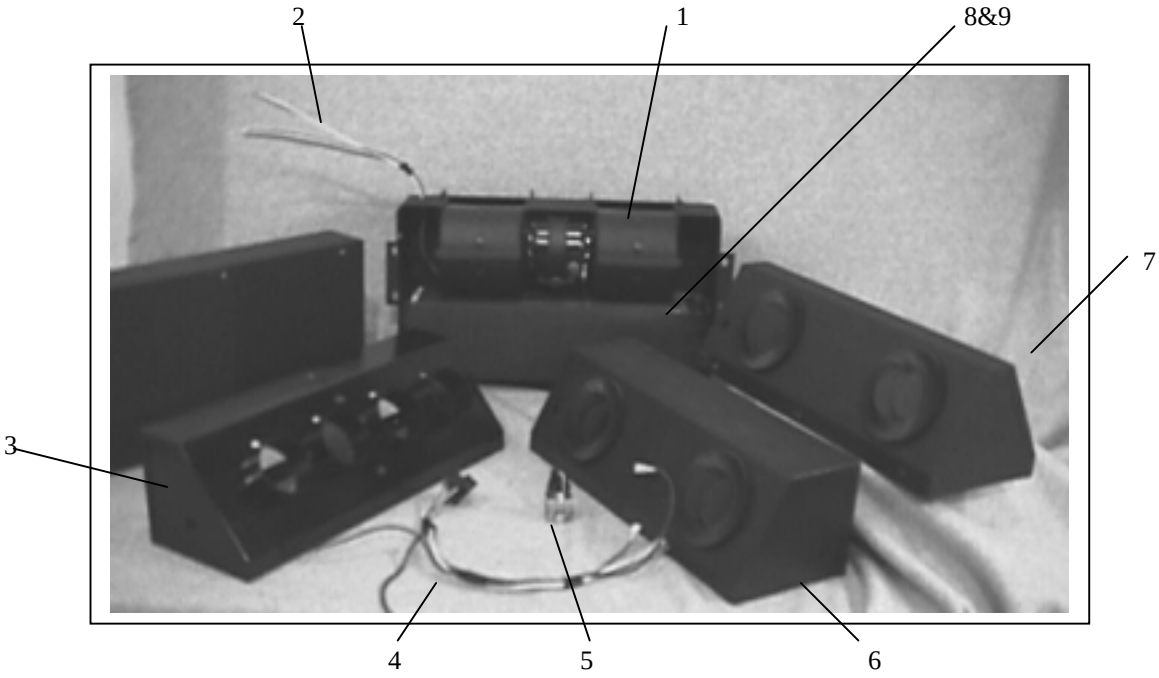
1	03 000 076	Coil, condenser
2	11 000 127	Fan, 11" puller
3	05 000 284	Right side tube assembly
4	05 000 283	Left side tube assembly
5	06 000 319	Mounting bracket
6		
7		

HEATERS:

PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

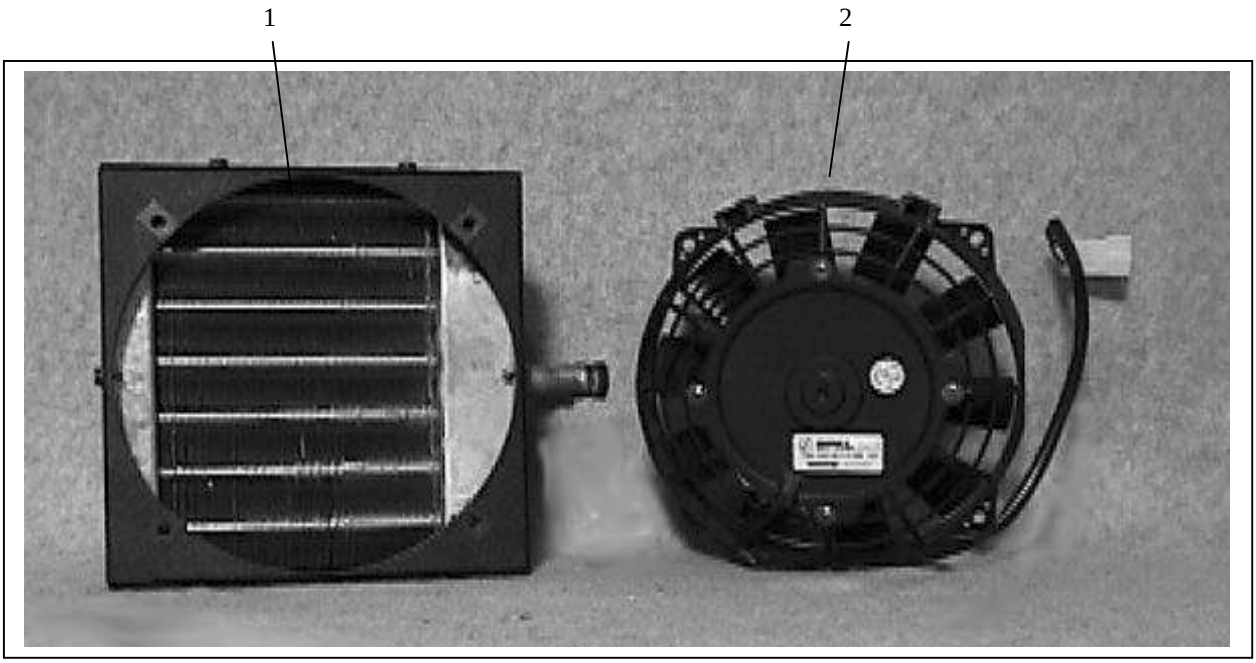
FRIGKING, 50M BTU DASH H/O, FREEBLOW 24V — PART NO. 66 000 110
FRIGIKING, 50M BTU DASH H/O DUCTED 24V — PART NO. 66 000 111
FRIGIKING, 50M BTU DASH H/O 24V DUCTED 4-2 ½" HA — PART NO. 66 000 112



	PART NUMBER	DESCRIPTION
1	11 000 141	Blwr assy, Spal 24v dbl small
2	01 000 073	Harn, SPAL blower motor
3	06 000 414	Top, ducted 4-2 ½" outlets dash (P/N 66 000 112)
4	01 000 230	Harn, 50m btu dash htr
5	01 000 027	Switch, 4-position rotary
6	06 000 412	Top, ducted dash heater (P/N 66 000 111)
7	06 000 411	Top, free blow dash heater (P/N 66 000 110)
8	03 000 104	Coil, heater 50m btu
9	08 000 001	Foam, 1/8 x 4 x 5.66ft

COMMERCIAL PRODUCTS SERVICE MANUAL

418 HEATER 18m BTU, 12v P/N 66 000 090
418 HEATER 18m BTU, 24v P/N 66 000 091

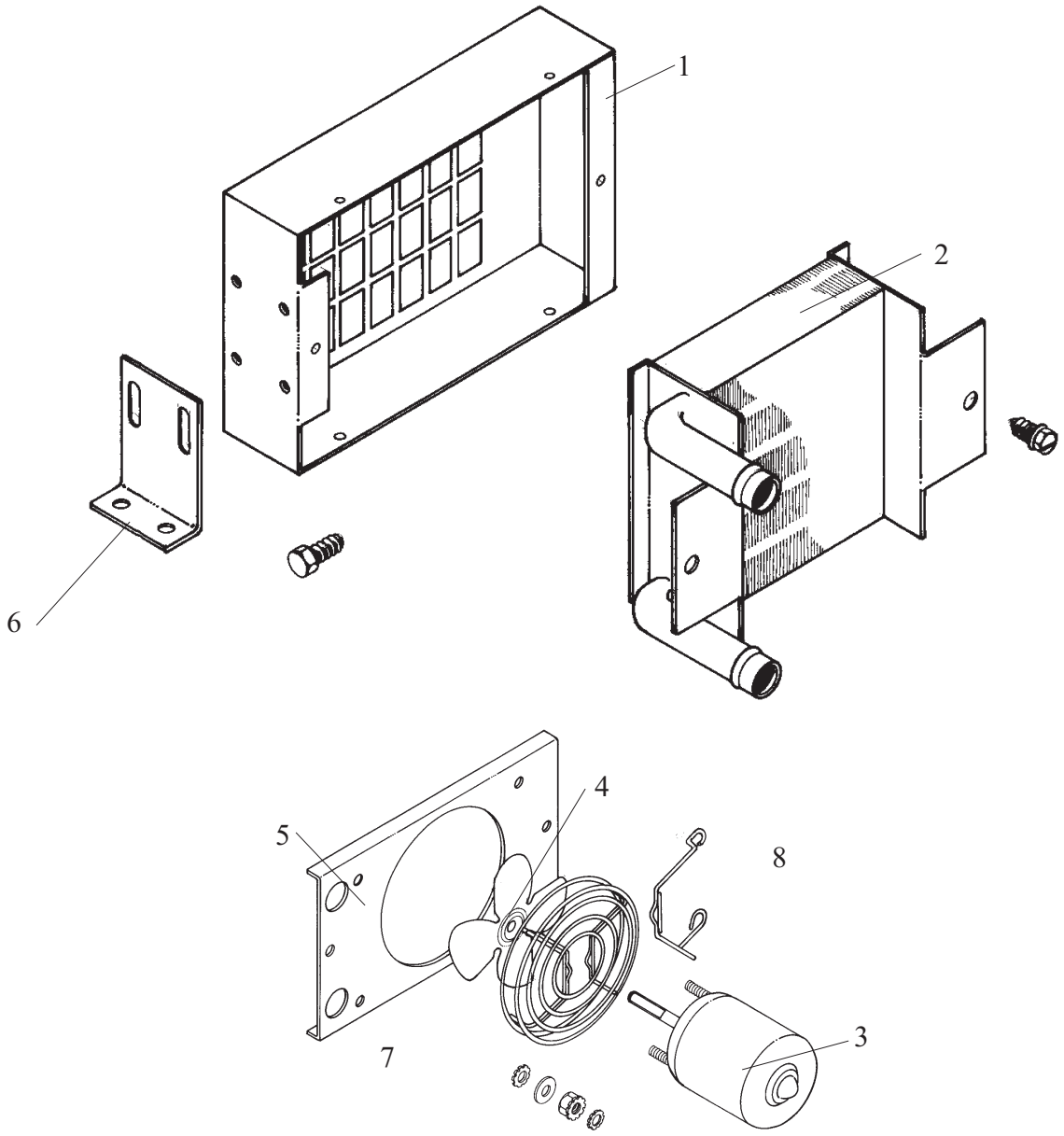


	PART NUMBER	DESCRIPTION
1	03 000 092	Coil, ht 18m BTU 418 htr
2	11 000 142 11 000 143	Fan, SPAL 12v 6.5” pusher (Ref. P/N 66 000 090) Fan, SPAL , 24v 6.5” pusher (Ref. P/N 66 000 091)

PROAIR LLC

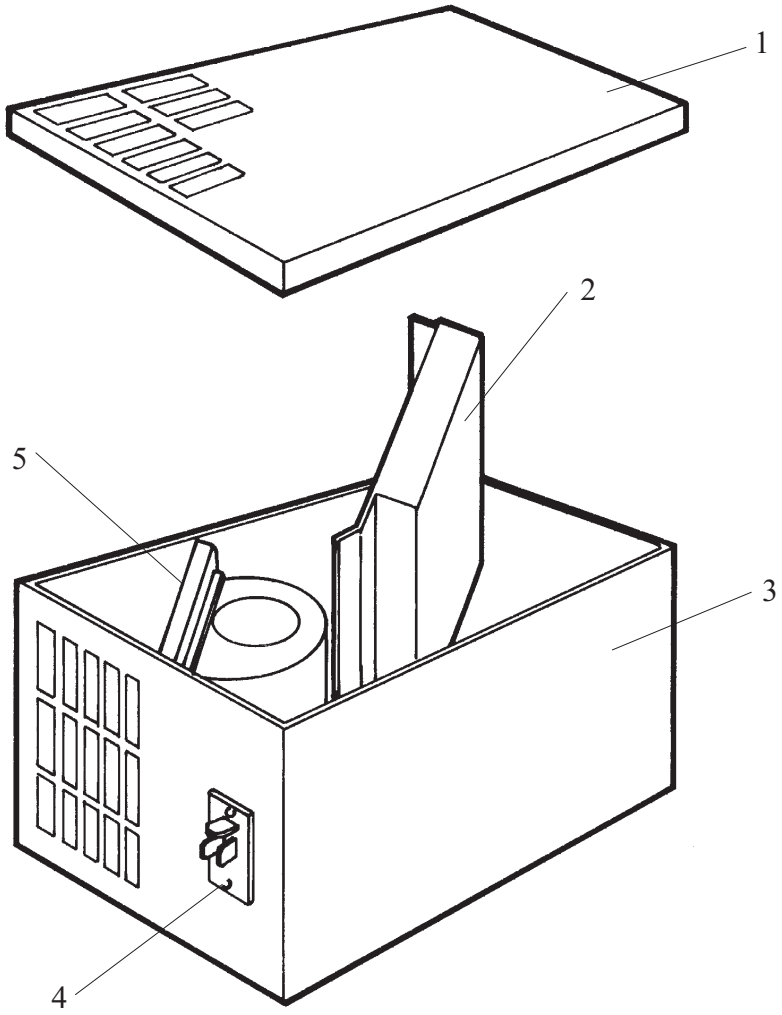
COMMERCIAL PRODUCT SERVICE MANUAL

420 HEATER, PART NUMBER 50 000 111



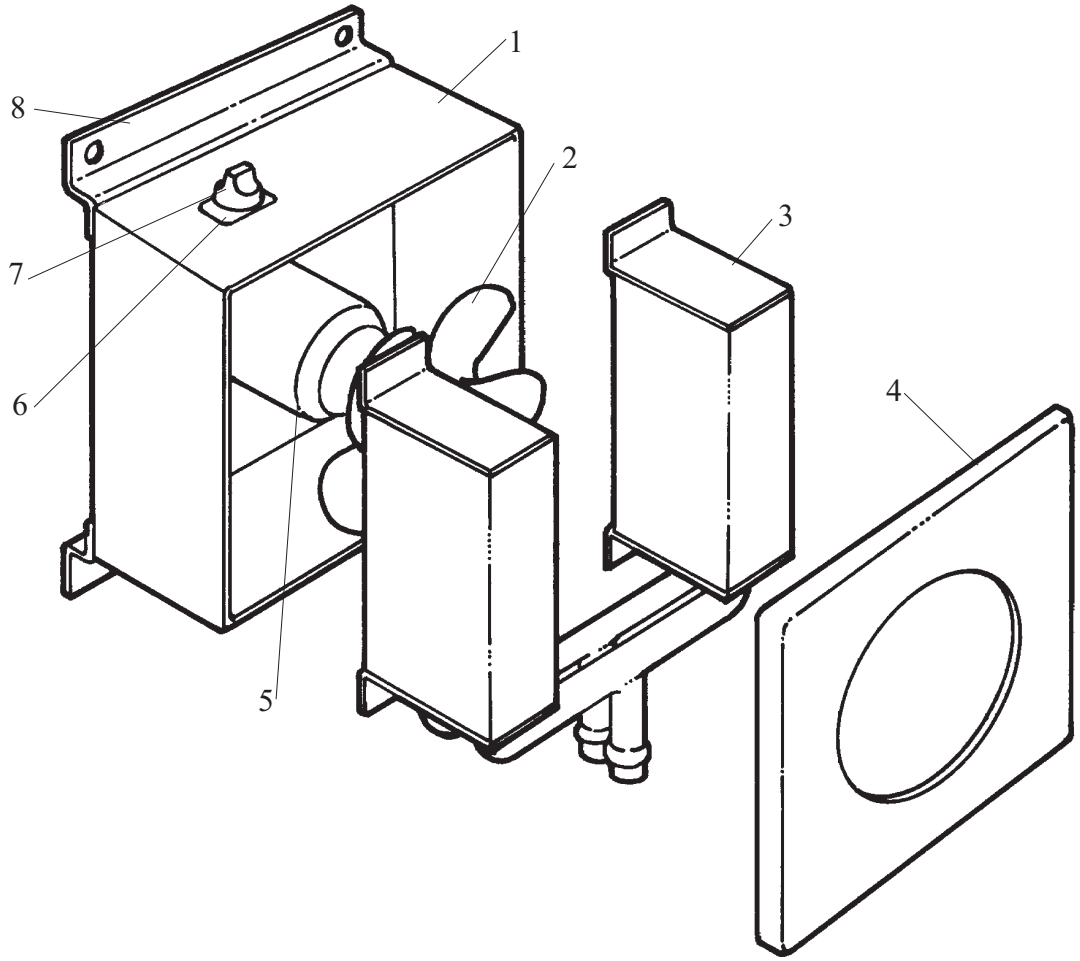
1	06 000 049	Case, coil mounting
2	03 000 020	Coil, heat
3	11 000 098	Motor, 12v 2-speed
4	11 000 044	Fan, 6” 4-blade
5	06 000 050	Panel, fan mounting
6	06 000 053	Mounting bracket
7	06 000 224	Fan guard
8	06 000 225	Motor bracket

425 HEATER, PART NUMBER 66 000 061



1	06 000 328	Case top
2	03 000 079	Coil, heater
3	06 000 330	Case bottom
4	01 000 091	Resistor
5	11 000 074	Blower assembly
6	01 000 087	Wire harness
7		

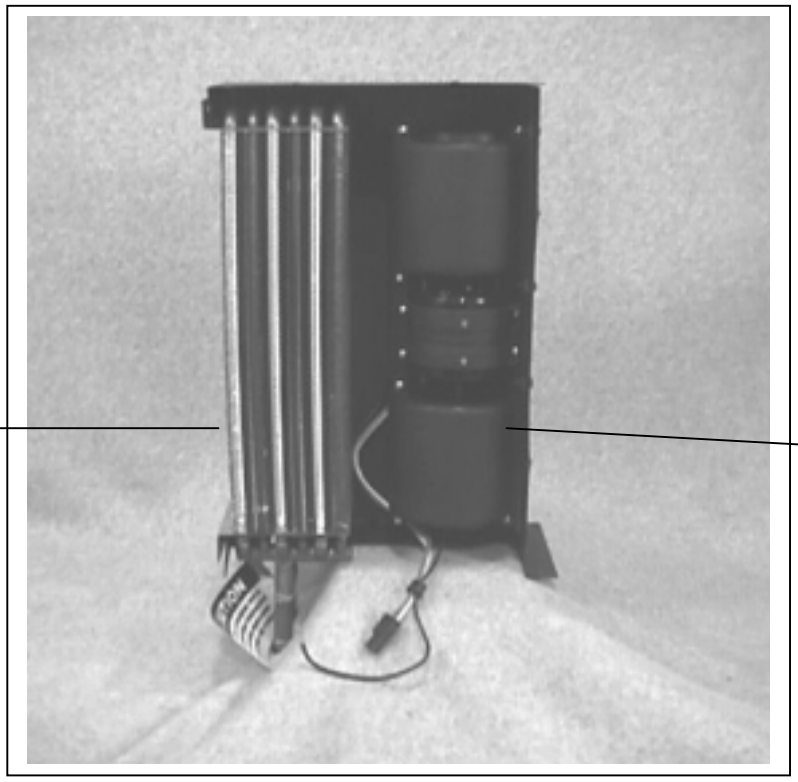
432 HEATER, PART NUMBER 66 000 078



1	06 000 258	Case bottom
2	11 000 126	Fan, 7" blade
3	03 000 057	Coil, heater
4	06 000 259	Case top
5	11 000 098	Motor, 12v
6	01 000 001	Switch, 3-position
7	01 000 086	Knob, w/set screw
8	06 000 261	Mounting bracket

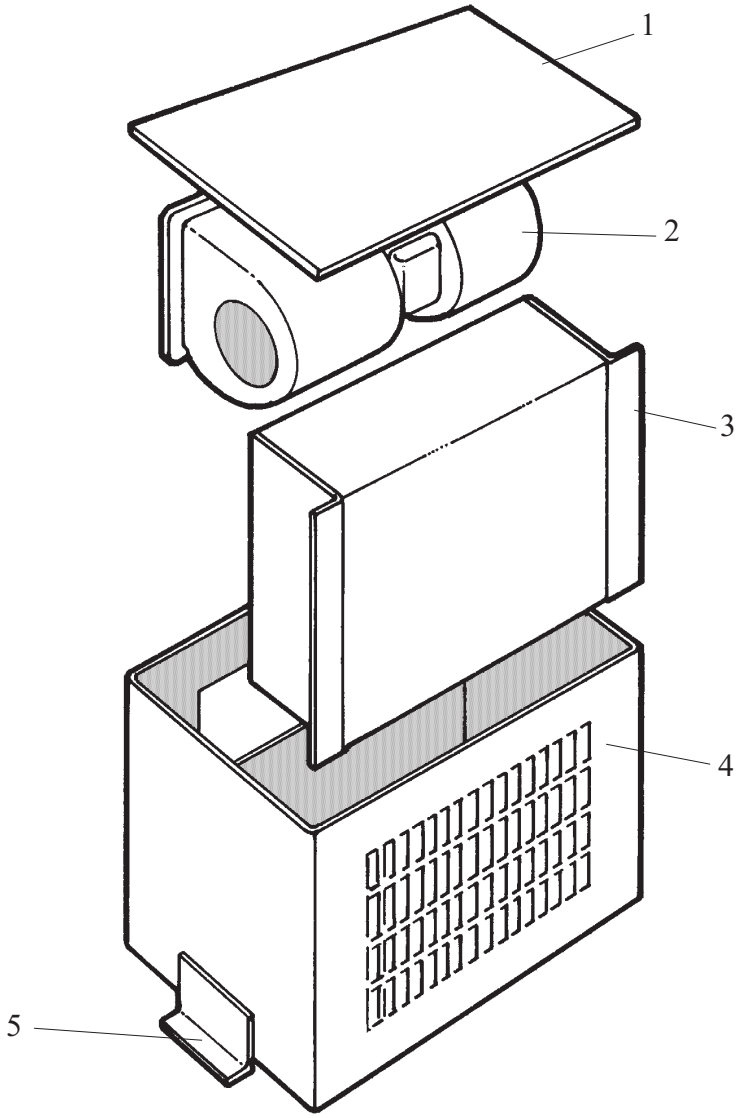
COMMERCIAL PRODUCTS SERVICE MANUAL

450 HEATER 50M BTU UPRIGHT PART NO. 66 000 084
450 HEATER 50M BTU UPRIGHT W/OPT WIRING PART NO. 66 000 086



	PART NUMBER	DESCRIPTION
1	03 000 088	Coil, heat 50m BTU 450
2	11 000 138	Blower Assembly, 12v wire wnd 2-wheel

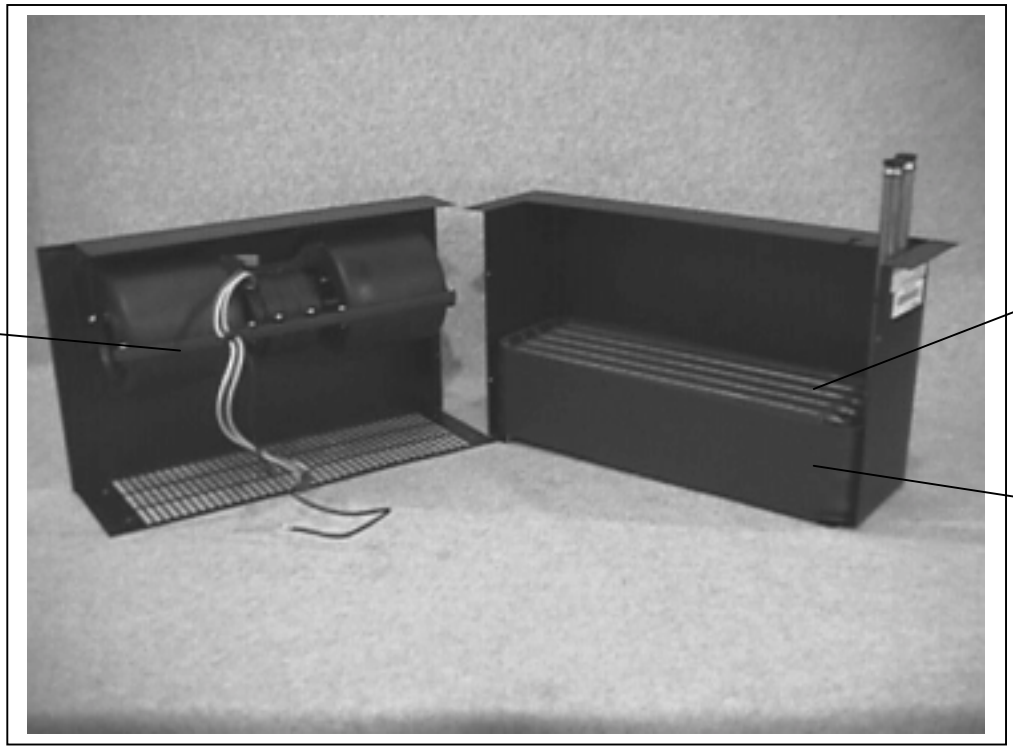
455 HEATER, PART NUMBER 50 000 115



1	06 000 087	Case top
2	11 000 068	Blower assembly
3	03 000 030	Coil, heater
4	06 000 088	Housing
5	06 000 044	Mounting bracket
6	01 000 071	Wiring harness
7		

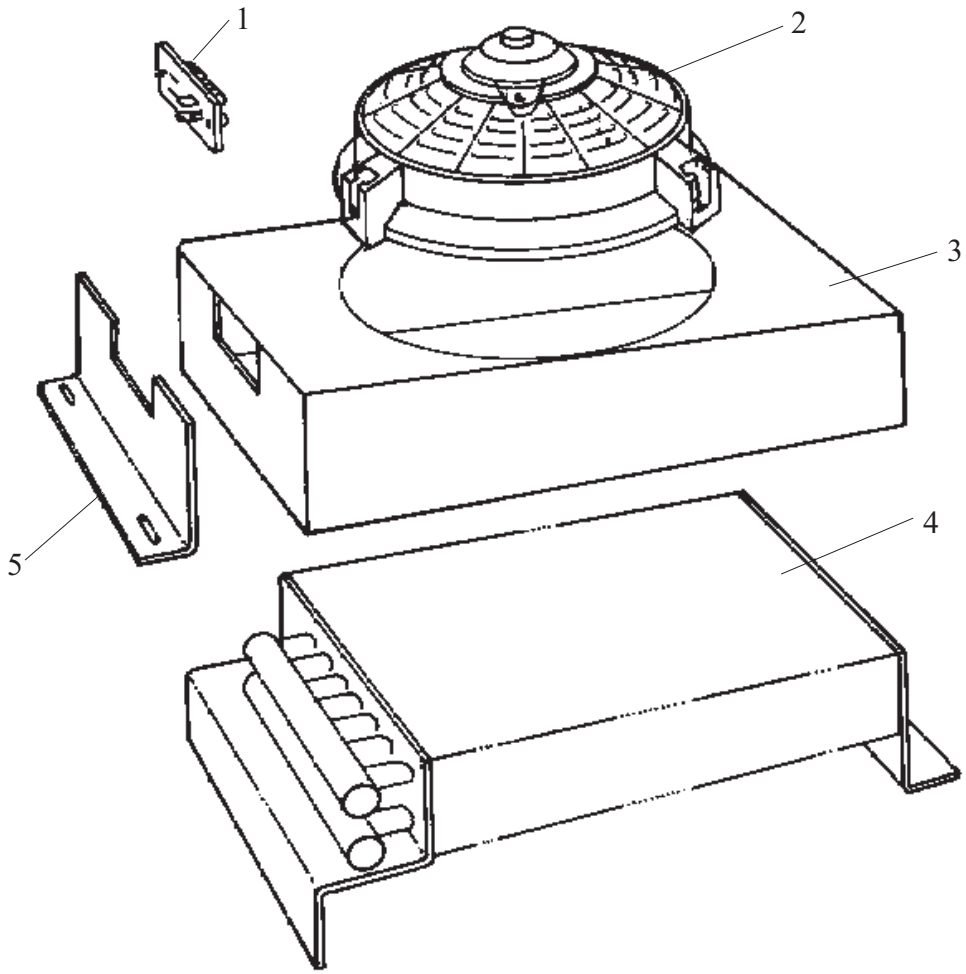
COMMERCIAL PRODUCTS SERVICE MANUAL

460 HEATER 60M BTU UPRIGHT PART NO. 66 000 085



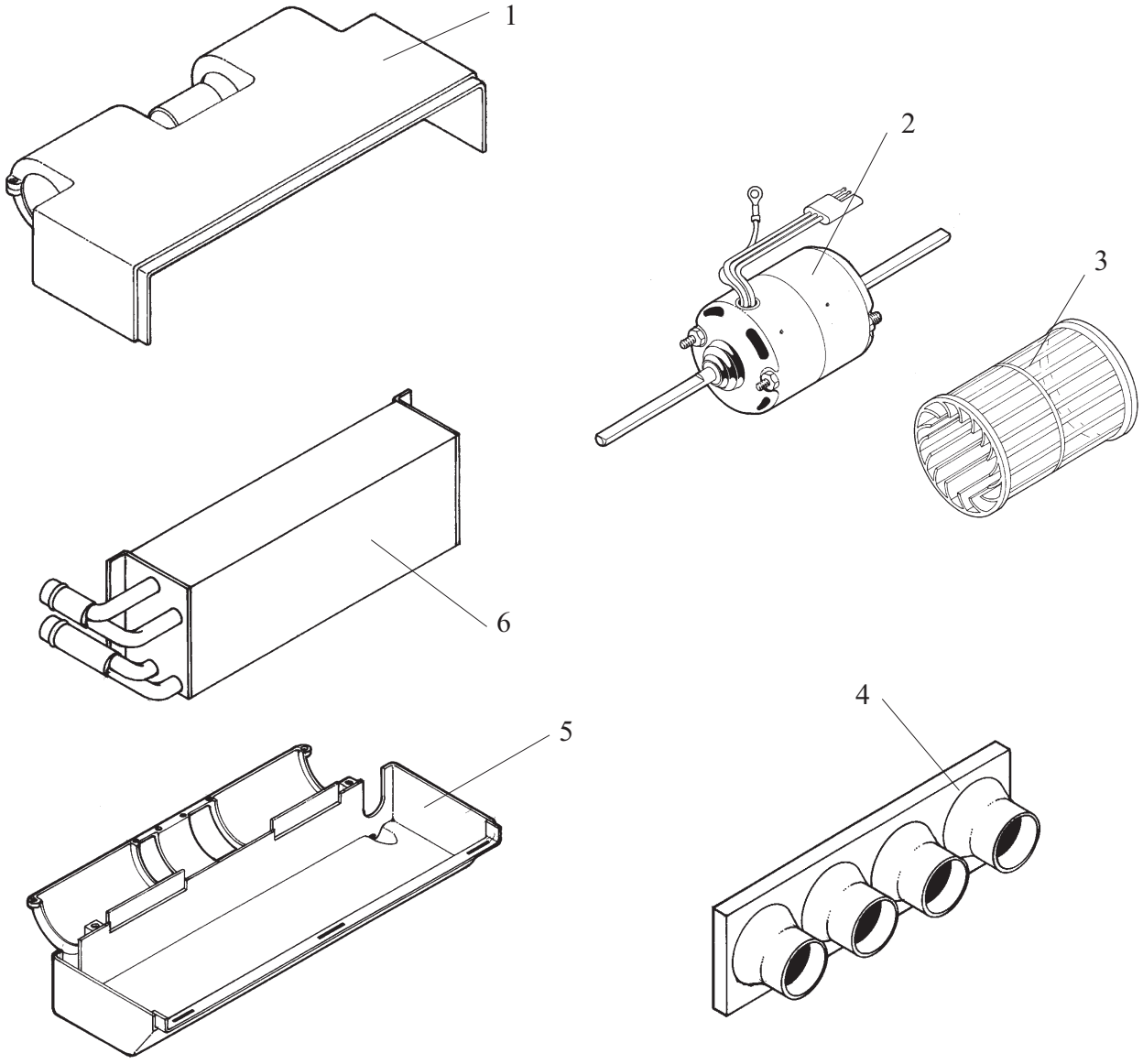
	PART NUMBER	DESCRIPTION
1	11 000 138	Blower Assembly, 12v wire wnd 2-whl
2	03 000 089	Coil, Heat 60m BTU 460 BTU
3	08 000 001	Foam 1/8 x 4” x 3’

UNDERSEAT HEATER, PART NUMBER 50 000 494



1	01 000 091	Resistor
2	11 000 120	Fan, 9”
3	06 000 309	Housing
4	03 000 068	Coil
5	06 000 310	Mounting bracket
6	01 000 087	Wiring harness
7		

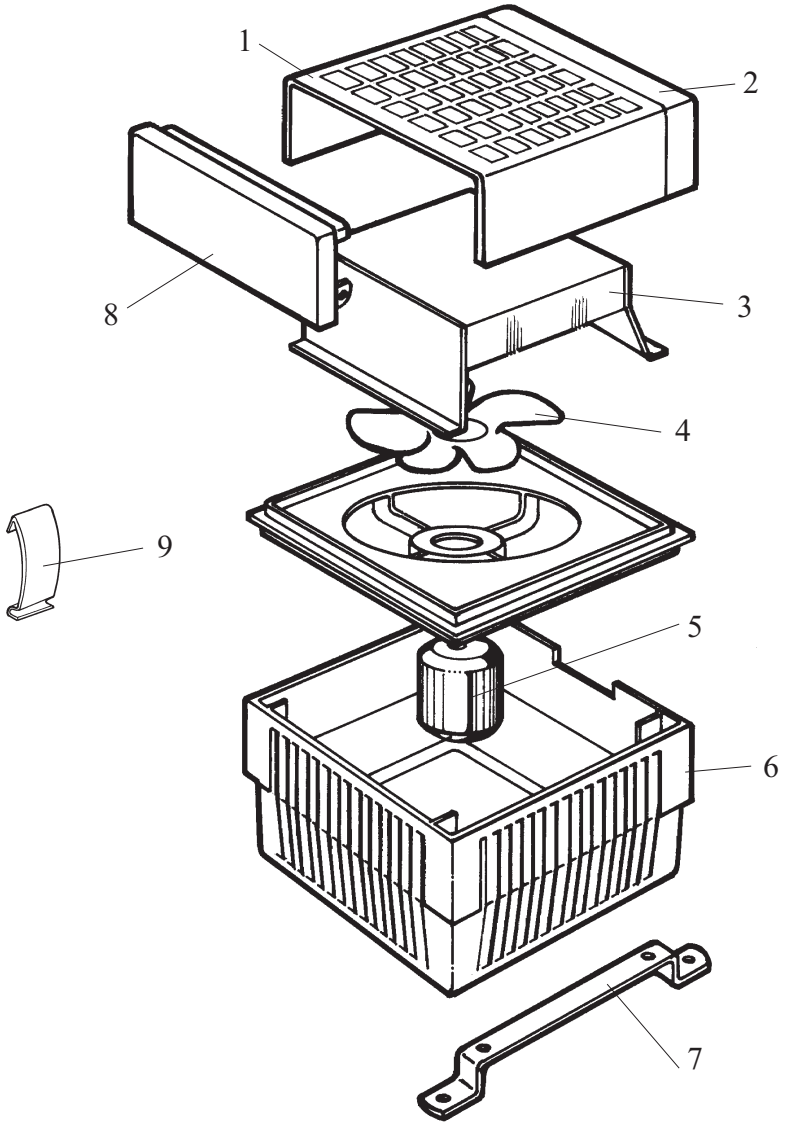
901 HEATER, PART NUMBER 66 000 018



1	07 000 132	Case top
2	11 000 005	Blower motor
3	11 000 004	Blower wheel
4	07 000 026	Nose, 4-hole
5	07 000 133	Case bottom
6	03 000 015	Coil, heat only

COMMERCIAL PRODUCTS SERVICE MANUAL

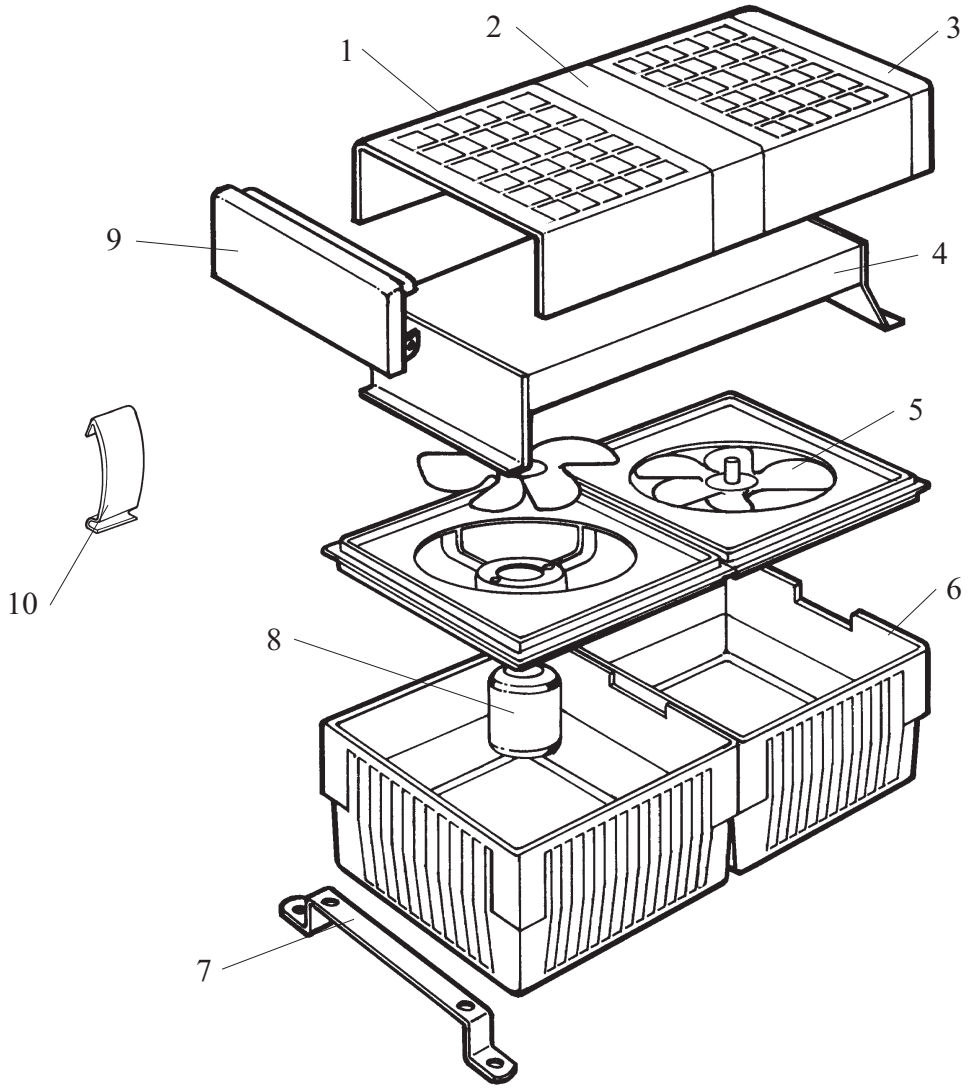
435 HEATER, PART NUMBER 66 000 066, 445 HEATER 66 000 067



1	07 000 413	Case top
2	07 000 416	End cap, tube end
3	03 000 072	Coil, heater, 435, 03 000 073 Coil, heater 445,
4	11 000 126	Fan, 7" blade
5	11 000 098	Motor, 12v
6	07 000 412	Case bottom
7	06 000 325	Mounting bracket
8	07 000 415	End cap, blank
9	02 000 122	Clip, housing

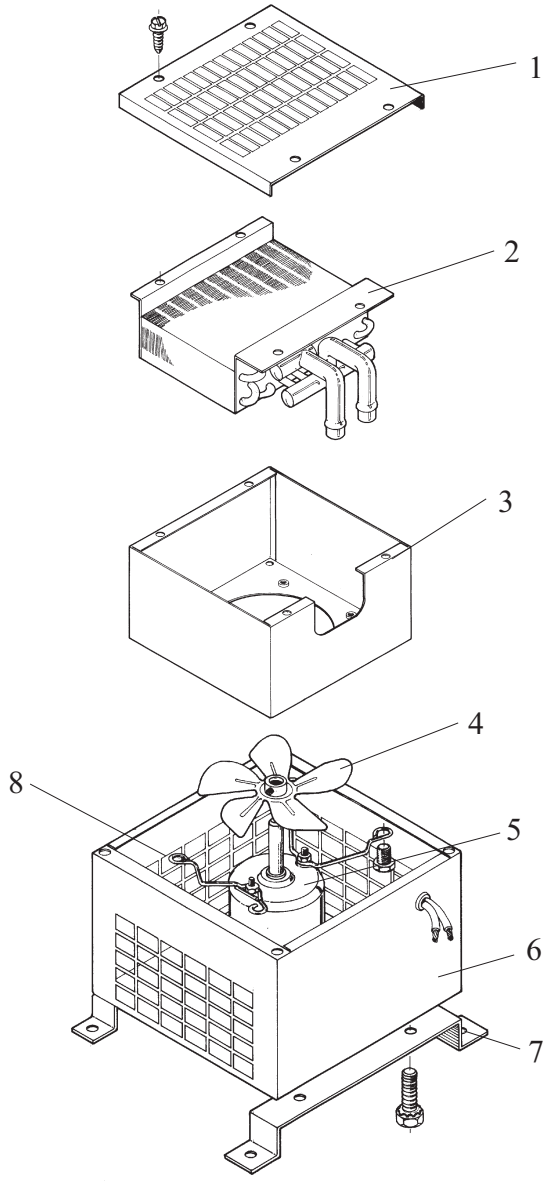
COMMERCIAL PRODUCTS SERVICE MANUAL

465 HEATER, PART NUMBER 60 000 068, 475 HEATER 66 000 069



1	07 000 413	Case top
2	07 000 417	Center housing
3	07 000 416	End cap, tube end
4	03 000 074	Coil, heater 465, 03 000 075 Coil, heater 475
5	11 000 126	Fan, 7" blade
6	07 000 412	Case bottom
7	06 000 325	Mounting bracket
8	11 000 098	Motor, 12 v
9	07 000 415	End cap, blank
10	02 000 122	Clip, housing

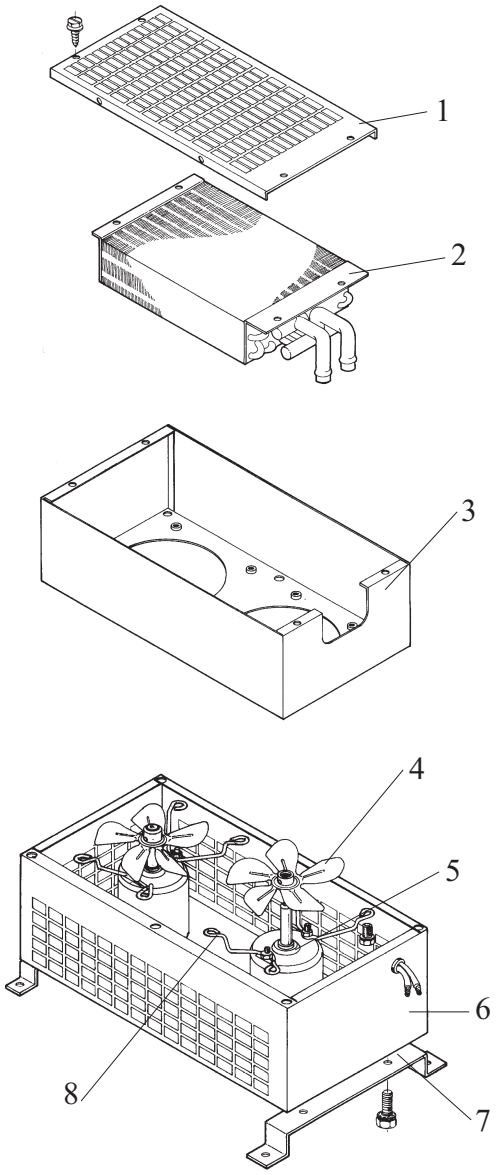
435 HEATER, STEEL CASE, PART NUMBER 50 000 113



1	06 000 170	Case top
2	03 000 022	Coil
3	06 000 171	Housing
4	11 000 107	Fan blade, 7”
5	11 000 098	Motor, 12v
6	06 000 172	Case bottom
7	06 000 169	Leg, mounting
8	06 000 225	Motor mounting bracket

COMMERCIAL PRODUCTS SERVICE MANUAL

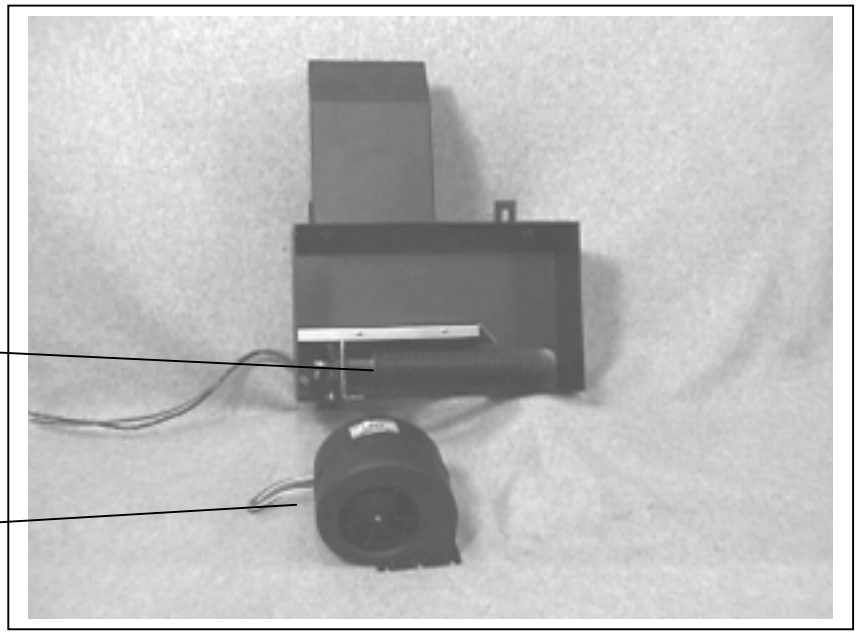
465 HEATER, STEEL CASE, PART NUMBER 50 000 116



1	06 000 173	Case top
2	03 000 023	Coil
3	06 000 175	Housing
4	11 000 107	Fan blade
5	11 000 098	Motor 12v
6	06 000 174	Case mounting
7	06 000 169	Leg. mounting
8	06 000 225	Motor mounting bracket

COMMERCIAL PRODUCTS SERVICE MANUAL

80VDC HEATER PART NUMBER 66 000 094



	PART NUMBER	DESCRIPTION
1	03 000 093	Element, 80v dc 1600 w
2	11 000 146	Blwr assy, Spal 12v sngl small

COMBINATION UNITS:

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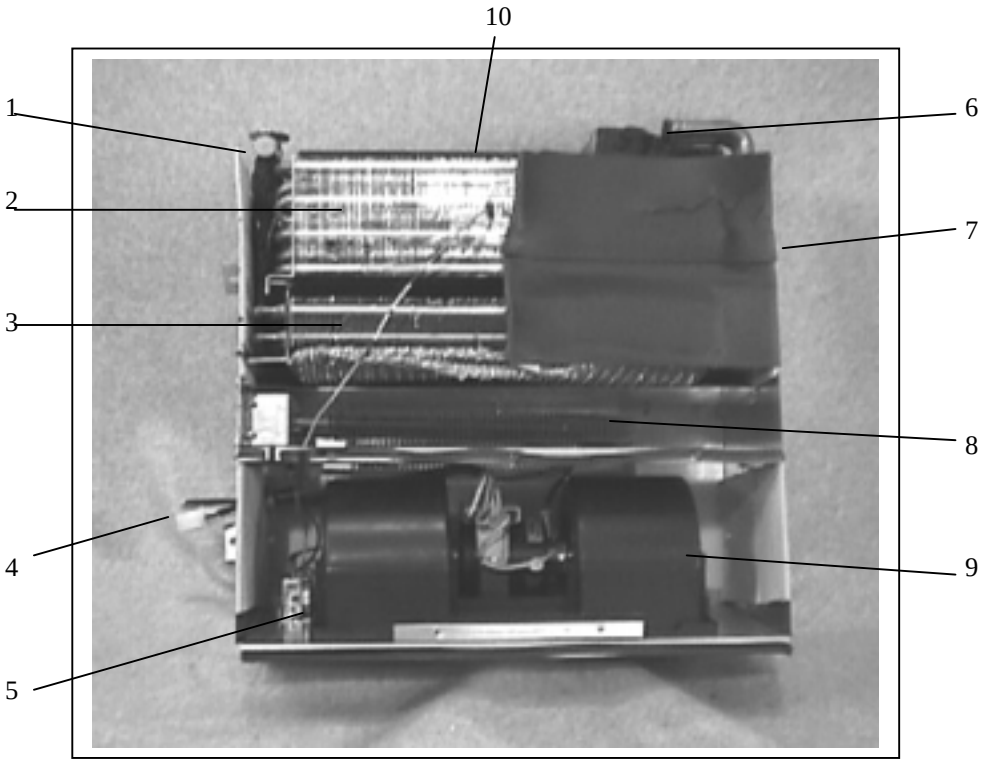
COMMERCIAL PRODUCTS SERVICE MANUAL

FRIGIKING, POWER PAK-310, 110/12V H/C — PART NO. 66 000 108
FRIGIKING, POWER PAK-310, 110/12V H/C ROOF MT — PART NO. 66 000 109

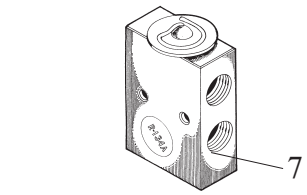


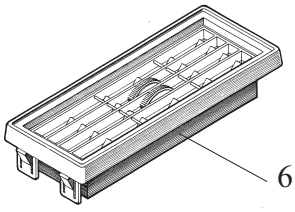
	PART NUMBER	DESCRIPTION
1	05 000 336	Valve, Expan R-22
2	03 000 045	Coil, heat/cool 940/935
3	03 000 103	Coil, A/C 110/12v
4	01 000 223	Harness, Evaporator heat/blower
5	01 000 048	Thermostat, non-adjustable
6	68 000 024	Kit, Expansion block valve 2 ton
7	08 000 001	Foam, 1/8 x 4 x 3ft
8	03 000 097	Element, heat
9	68 000 006	Blower Assembly, SPAL double w/seals
10	07 000 440	Pan, Drain 110/12v

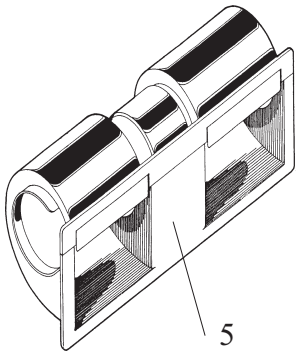
PROAIR LLC

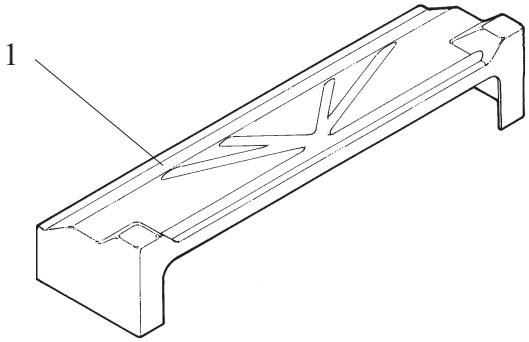
COMMERCIAL PRODUCTS SERVICE MANUAL

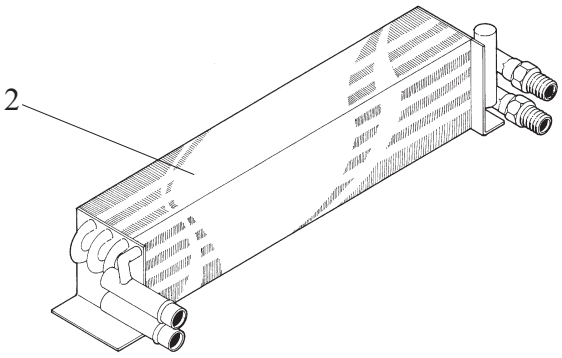
526 COOL ONLY- PM MTR, PART NUMBER 66 000 117
552 HEAT COOL-PM MTR, PART NUMBER 66 000 118

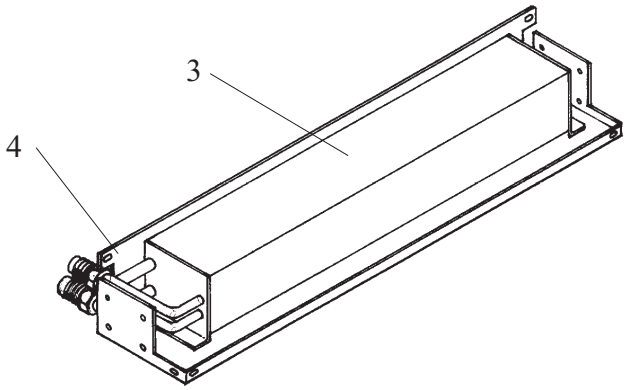








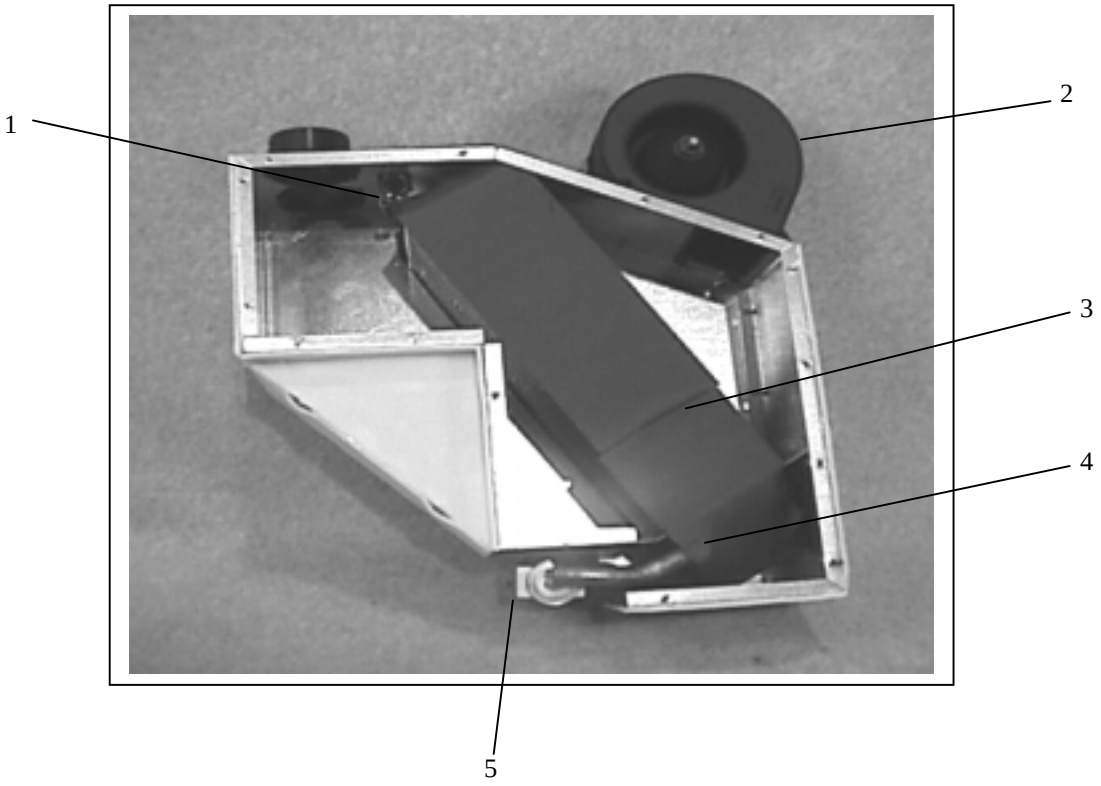




1	60 001 157	Case bottom, heat/cool
	60 001 158	Case bottom, cool only
2	03 000 003	Coil, heat/cool
3	03 000 004	Coil, cool only
4	06 000 054	Base, 526/552
5	11 000 156	Blower motor assembly
6	11 000 023	Louver
7	05 000 022	Thermal expansion valve

COMMERCIAL PRODUCTS SERVICE MANUAL

FRIGIKING 626 H/C UNIT PART NO. 66 000 101



	PART NUMBER	DESCRIPTION
1	01 000 091	Resistor, Blower AT, MM, VPSI
2	68 000 005	Motor Blower Assembly AT
3	08 000 001	Foam 1/8 x 4” x 3’
4	03 000 100	Coil, 626 H/C
5	68 000 024	Kit, Expansion Block Valve 2ton

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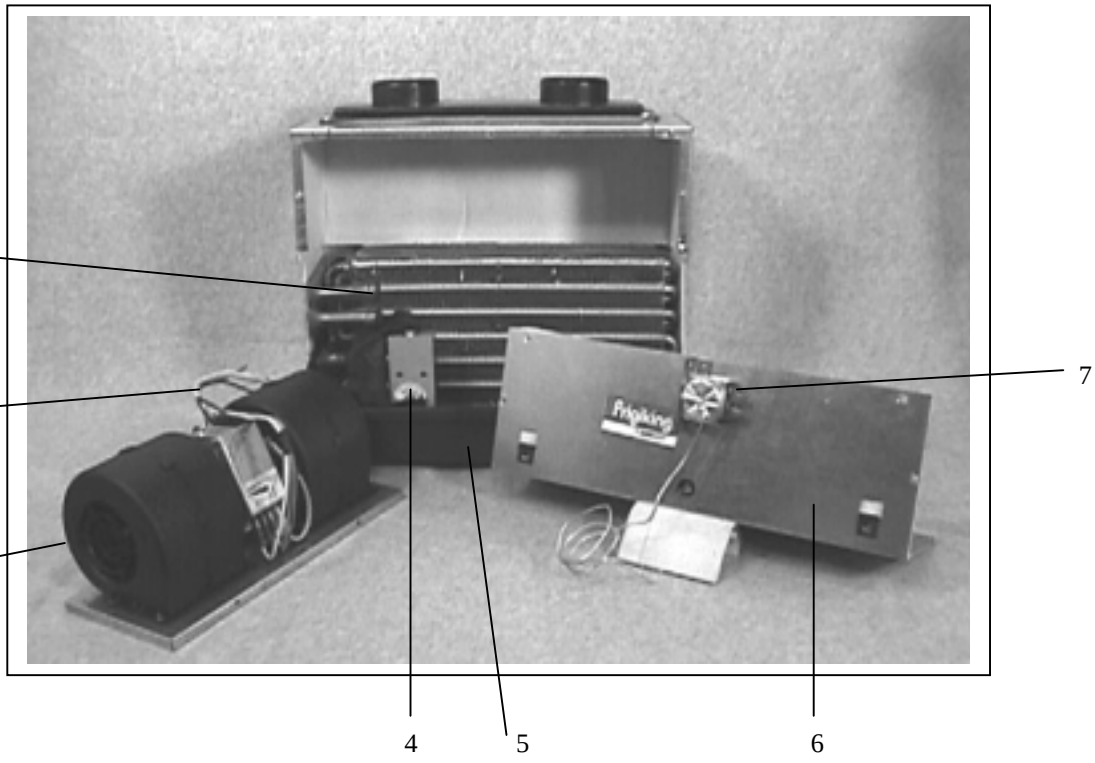
COMMERCIAL PRODUCTS SERVICE MANUAL

921 FRIGIKING POWER PAK H/C PART NUMBER 66 000 104



	PART NUMBER	DESCRIPTION
1	03 000 102	Coil, ht/cool 921
2	01 000 071	Harness 960 SPAL blower
3	68 000 006	Blower Assembly w/seals
4	68 000 024	Kit, Expansion Block valve 2ton
5	07 000 443	Pan, Drain 921
6	06 000 395	Plate, 921 Blower divider
7	01 000 048	Thermostat, non-adjustable

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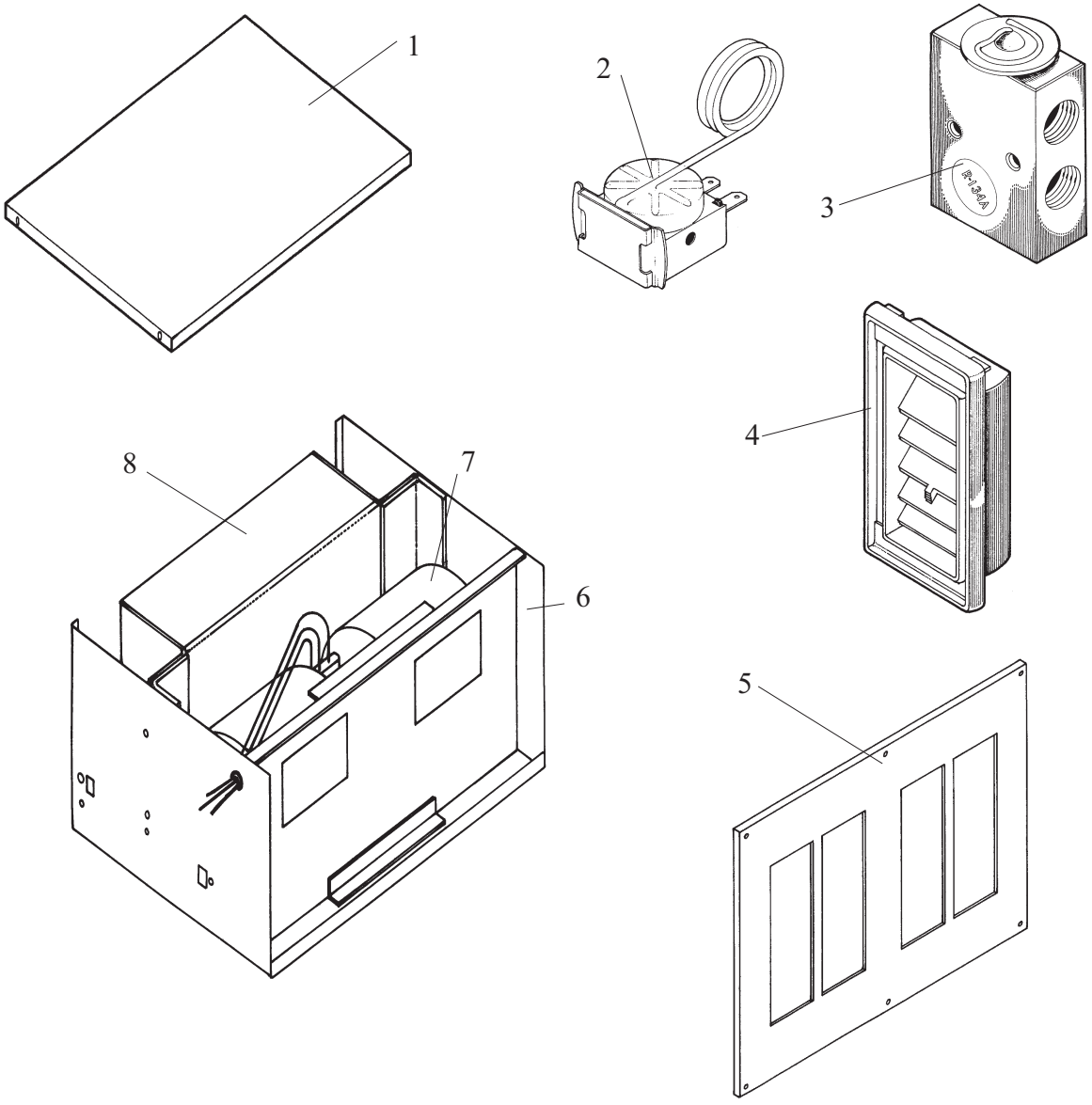
COMMERCIAL PRODUCTS SERVICE MANUAL

925 COOL ONLY, PART NUMBER 60 000 552



1	06 000 032	Case top
2	01 000 048	Thermostat, non-adjustable
3	05 000 022	Thermal expansion valve
4	11 000 008	Louver
5	06 000 035	Case front
6	06 000 031	Housing
7	11 000 138	Blower motor assembly
8	03 000 014	Coil

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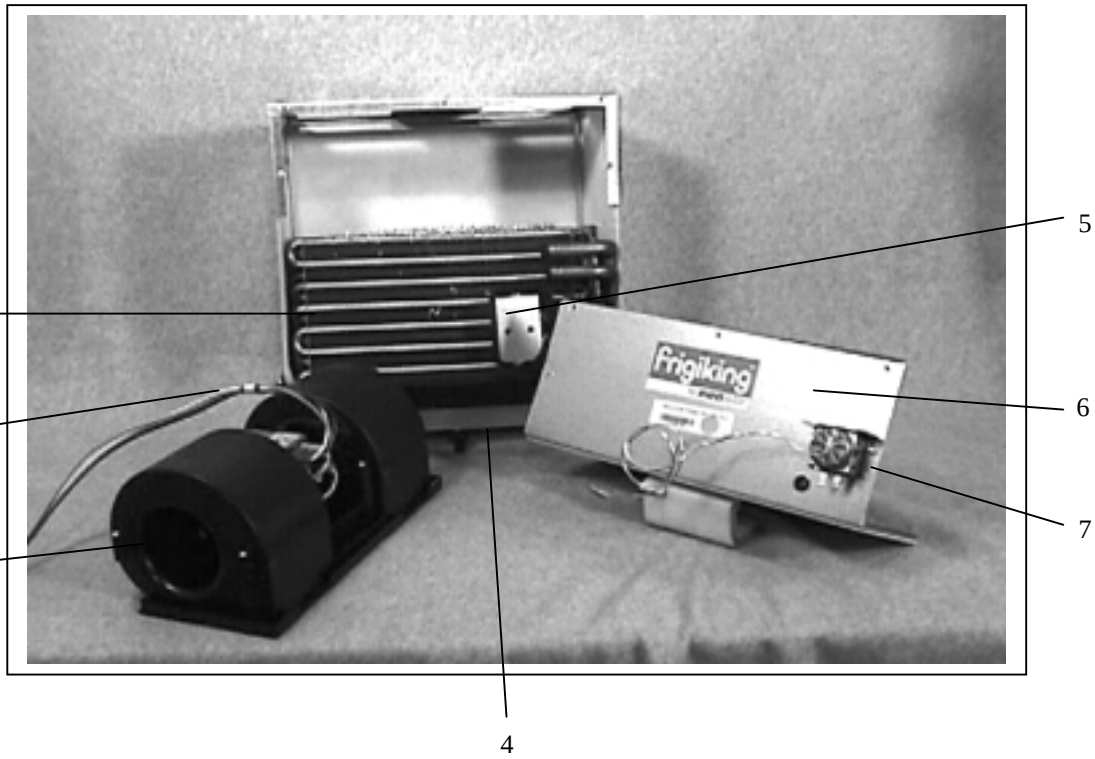
COMMERCIAL PRODUCTS SERVICE MANUAL

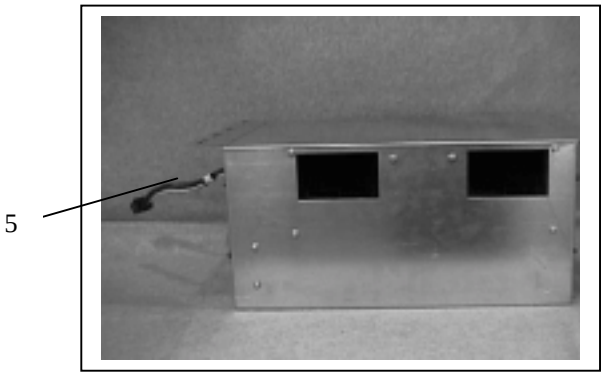
931 FRIGIKING POWER PAK H/C PART NUMBER 66 000 105



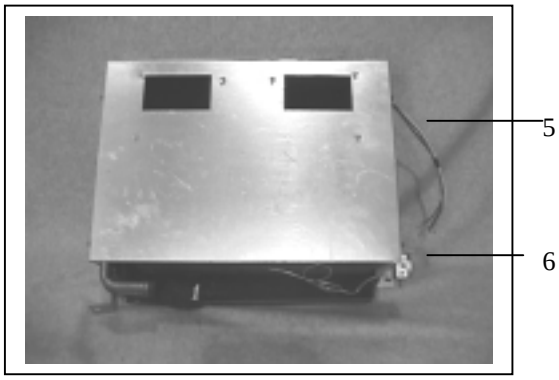
	PART NUMBER	DESCRIPTION
1	03 000 101	Coil, Heat/Cool 931
2	01 000 071	Harness, 960 SPAL blower
3	68 000 006	Double Blower Assembly w/seals
4	07 000 442	Drain Pan
5	68 000 024	Kit, Expansion Block valve 2ton
6	06 000 393	Plate, 931 blower divider
7	01 000 048	Thermostat, non-adjustable

COMMERCIAL PRODUCTS SERVICE MANUAL

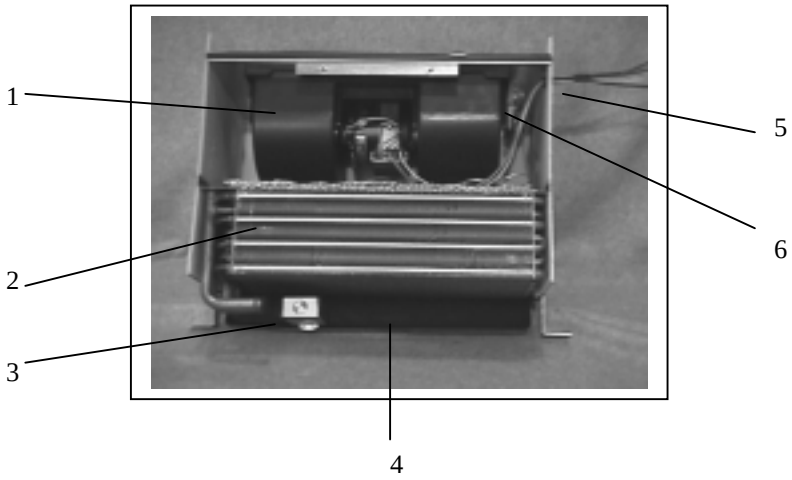
935 UNITS



P/N 66 000 087 frigiking, 935 h/c roof mt



P/N 66 000 046 Power Pak, 99-935 vert



P/N 66 000 004 frigiking, power pak 98-935 h/c

	PART NUMBER	DESCRIPTION
1	68 000 006	Blower Assembly, SPAL double w/seals
2	03 000 045	Coil, Heat/Cool
3	68 000 024	Valve, expansion block R-134a 2 ton
4	07 000 338	Pan, drain roto cast
5	01 000 206	Harness, wire (P/N 66 000 087)
	01 000 073	Harness SPAL Blower motor (P/N 66 000 004)
	01 000 071	Harness, 960 blower (P/N 66 000 046)
6	01 000 048	Thermostat, non adjustable w/12” cap tube

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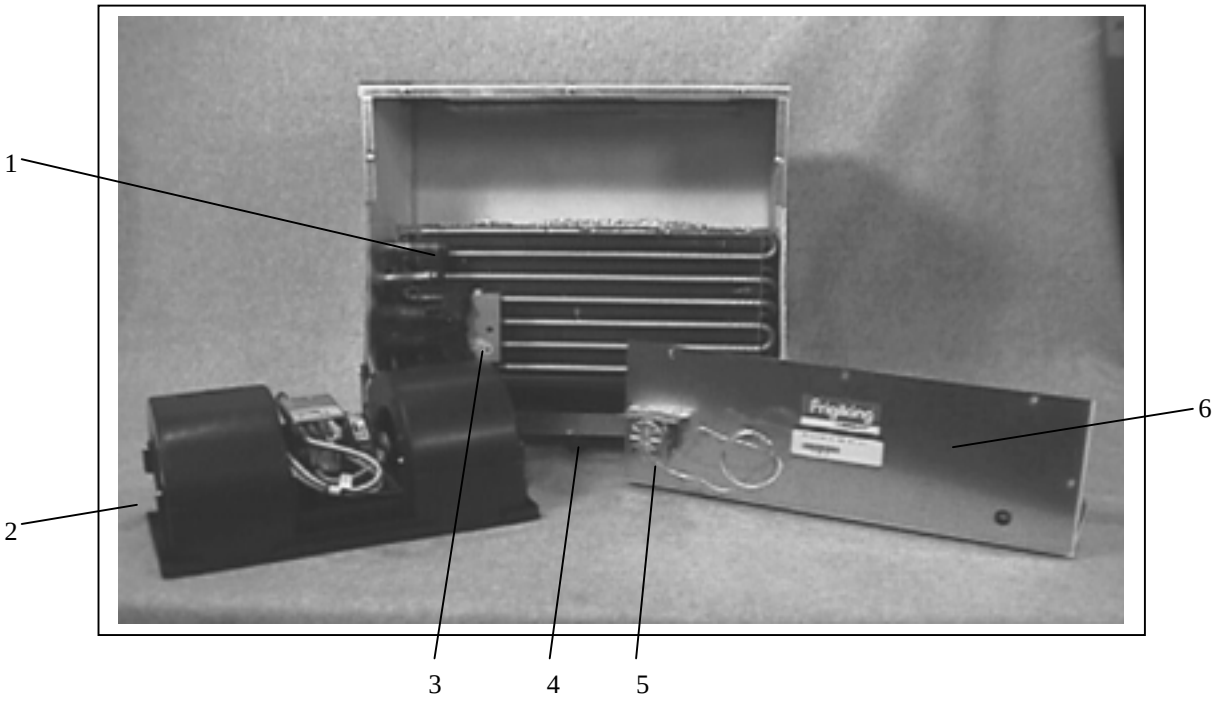
COMMERCIAL PRODUCTS SERVICE MANUAL

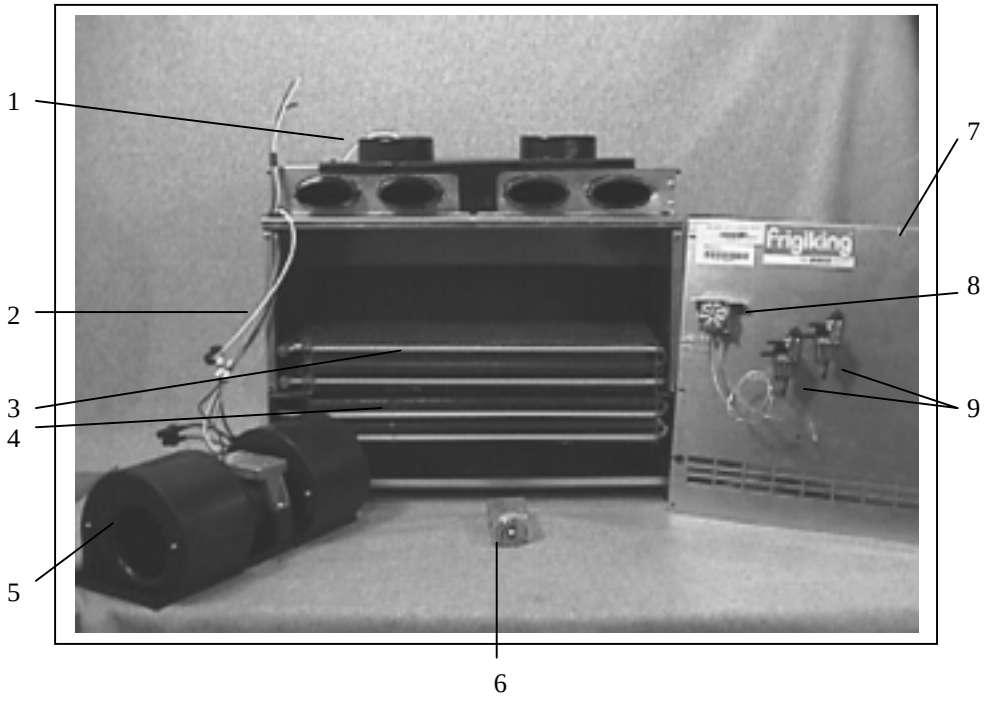
940 FRIGIKING POWER PAK H/C PART NUMBER 66 000 008
941 FRIGIKING POWER PAK H/C PART NUMBER 66 000 106



	PART NUMBER	DESCRIPTION
1	03 000 045	Coil, Heat/Cool 935/940
2	68 000 006	Double Blower Assembly w/seals
3	68 000 024	Kit, Expansion BLock valve 2ton
4	07 000 441	Pan, drain 941 or Pan, drain 940
5	01 000 048	Thermostat, non-adjustable
6	06 000 152	Plate, blower divider 940 h/c

COMMERCIAL PRODUCTS SERVICE MANUAL

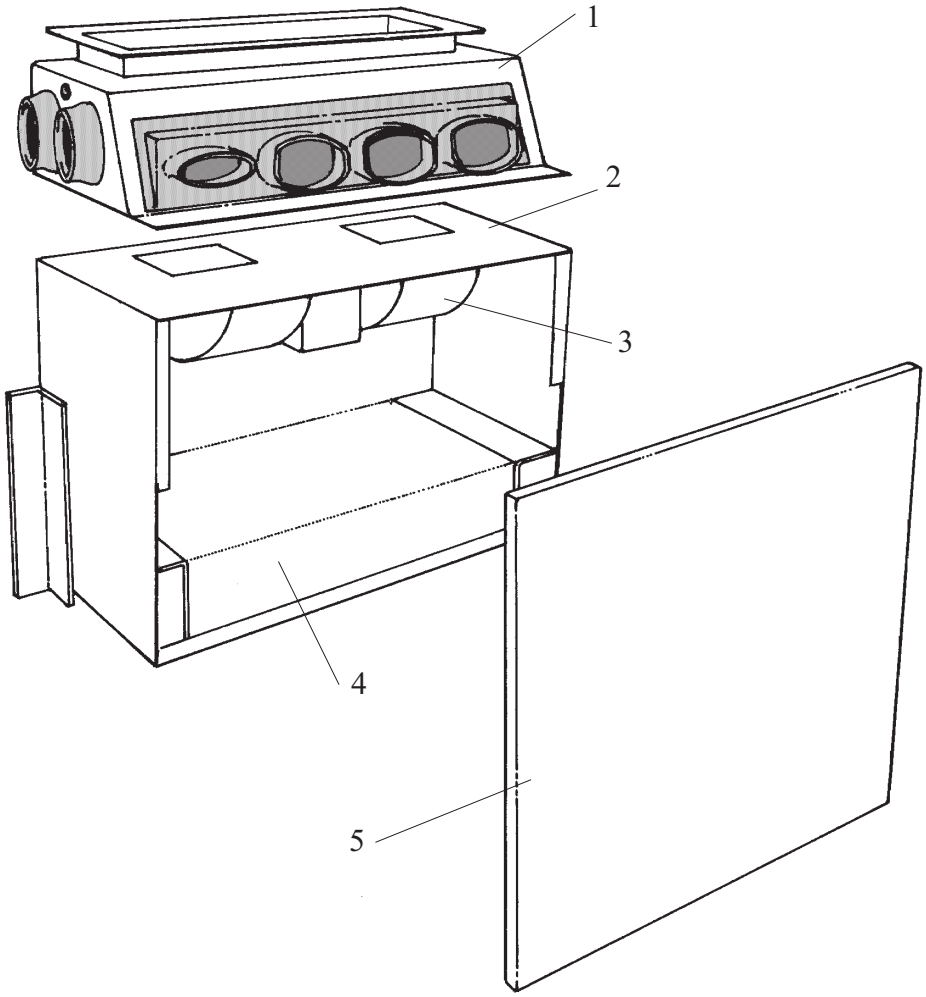
FRIGIKING 960 H/C WITH 4-HOLE OUTLET PART NUMBER 66 000 107
FRIGIKING 960 H/C DASH UNIT PART NUMBER 60 000 494



	PART NUMBER	DESCRIPTION
1	04 000 039	Vac harn, dual solenoid-960
2	01 000 071	Harness, 960 SPAL Blower
3	03 000 027	Coil, 960 heat
4	03 000 026	Coil, 960 A/C
5	68 000 006	Double Blower Assembly w/seals
6	68 000 024	Kit, Expansion Block valve 2ton
7	06 000 138	Panel, case front 960 h/c
8	01 000 048	Thermostat non-adj
9	11 000 024	Solenoid, vac

COMMERCIAL PRODUCTS SERVICE MANUAL

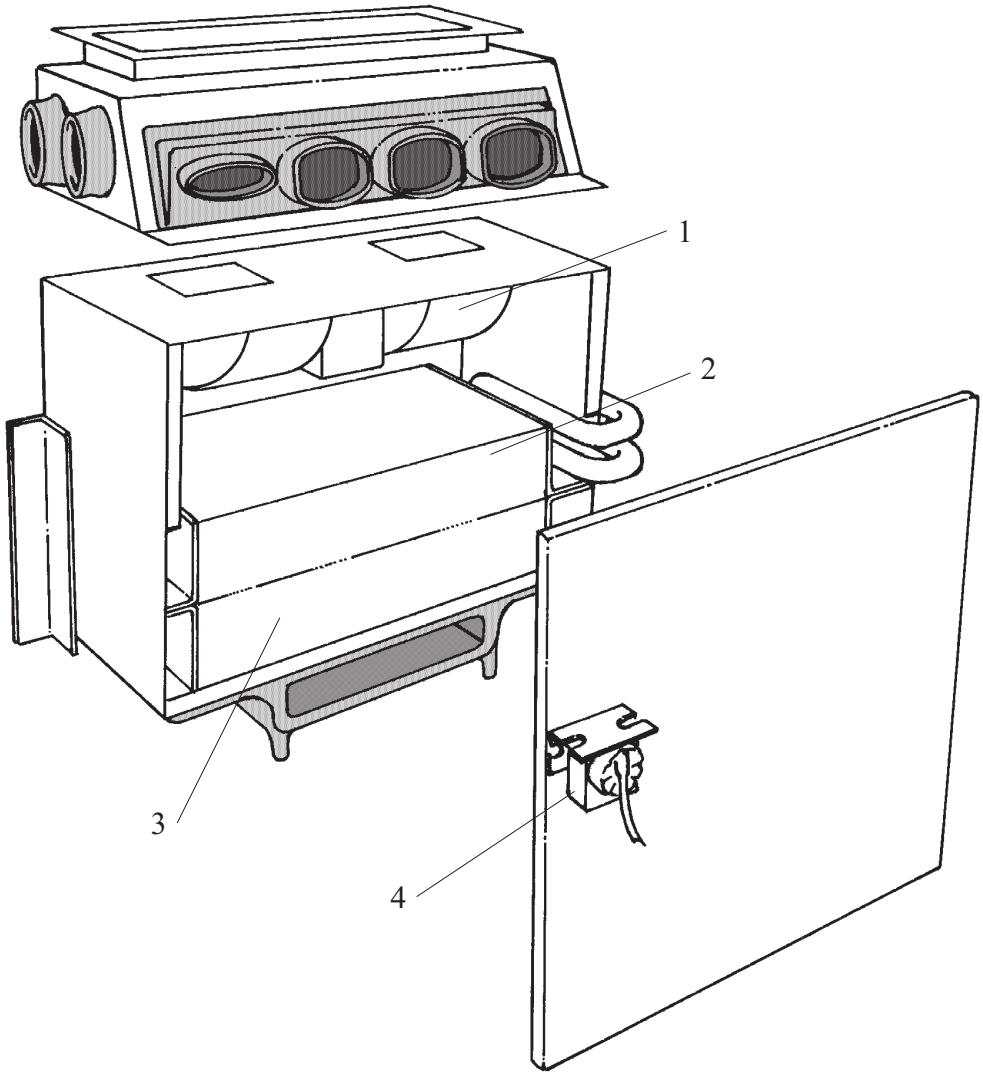
DASH MOUNTED HEAT ONLY, PART NUMBER 66 000 034



1	06 000 294	Case top
2	06 000 187	Case bottom
3	11 000 112	Blower motor assembly
4	03 000 064	Coil, heat only
5	06 000 285	Case front
6		
7		

COMMERCIAL PRODUCTS SERVICE MANUAL

DASH MOUNTED A/C, HEAT, DEFROST PART NUMBER 66 000 032

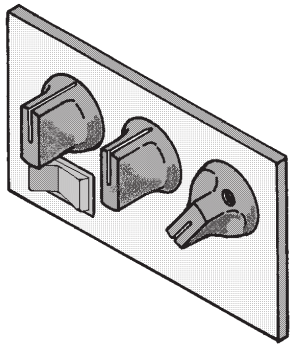


1	11 000 068	Blower assembly
2	03 000 049	Coil, heat
3	03 000 048	Coil, evaporator
4	01 000 048	Thermostat, non-adjustable
5	08 000 041	Blower seal
6		
7		

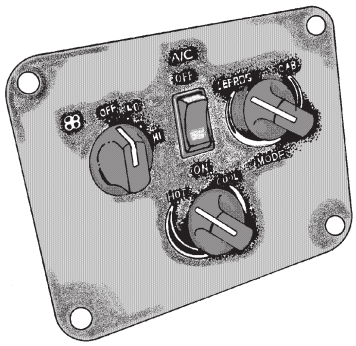
PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

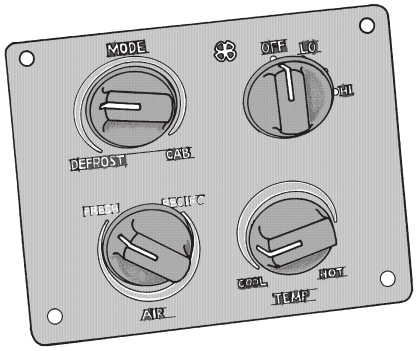
CONTROL HEADS, CABLES, AND VACUUM HARNESSES



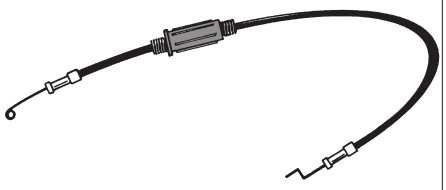
67 000 012 CONTROL HEAD, 960



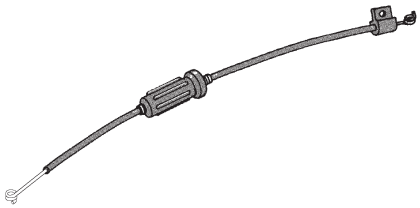
67 000 006 CONTROL HEAD



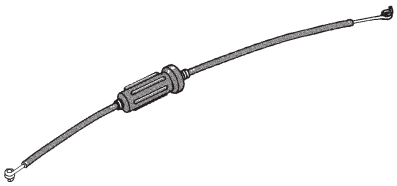
67 000 005 CONTROL HEAD



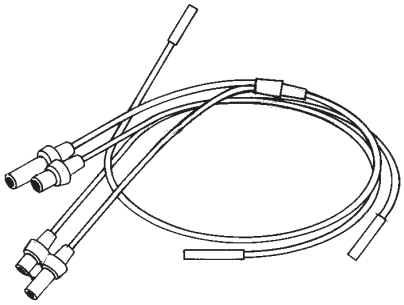
02 000 171 CABLE,



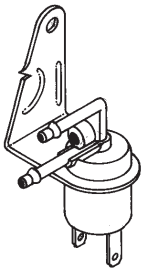
02 000 178 CABLE,



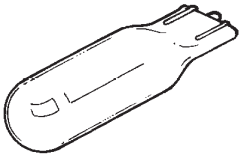
02 000 172 CABLE



04 000 039 VACUUM HARNESS, 960



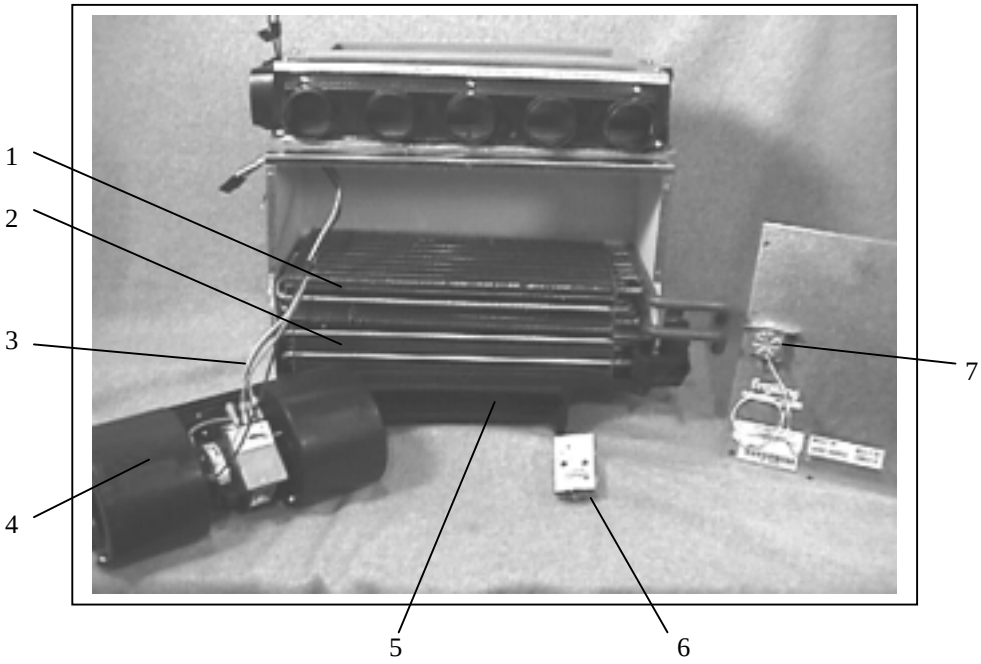
11 000 024 SOLENOID VALVE



01 000 084 LIGHT BULB, CONTROL HEAD

COMMERCIAL PRODUCTS SERVICE MANUAL

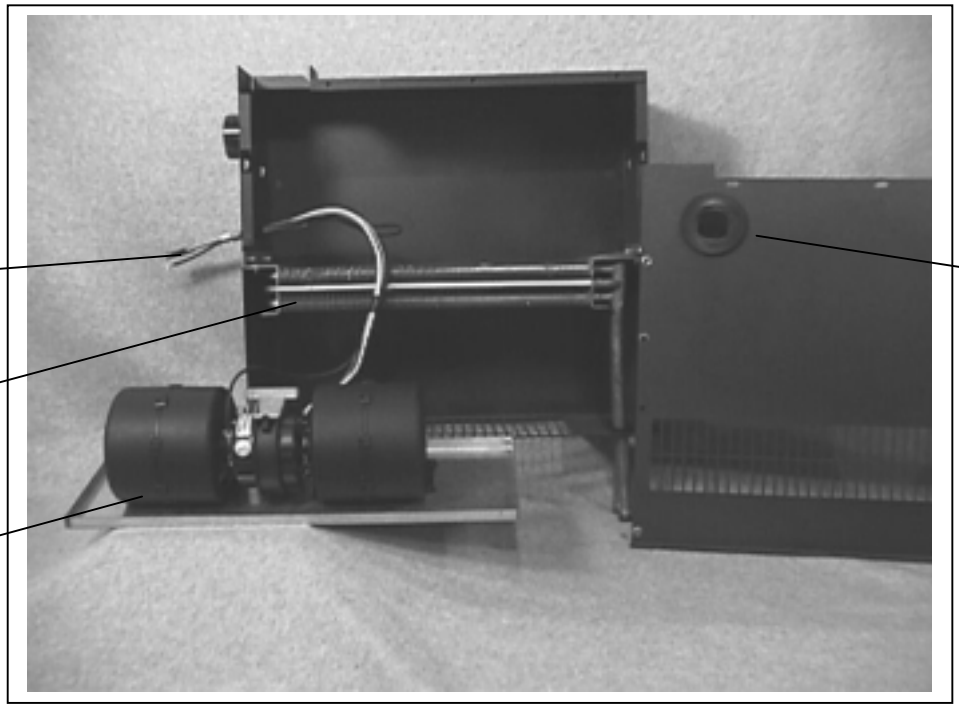
FRIGIKING CONTENDER POWER PAK PART NUMBER 66 000 033



	PART NUMBER	DESCRIPTION
1	03 000 062	Coil, Heat Contender
2	03 000 063	Coil, Evaporator Contender
3	01 000 154	Harness, wire SPAL Blower Step Van
4	68 000 006	Blower Assembly, Double 12v w/seals
5	07 000 345	Pan, Drain Step Van
6	68 000 024	Kit, Expansion Block valve 2ton
7	01 000 048	Thermostat, non-adjsutable

COMMERCIAL PRODUCTS SERVICE MANUAL

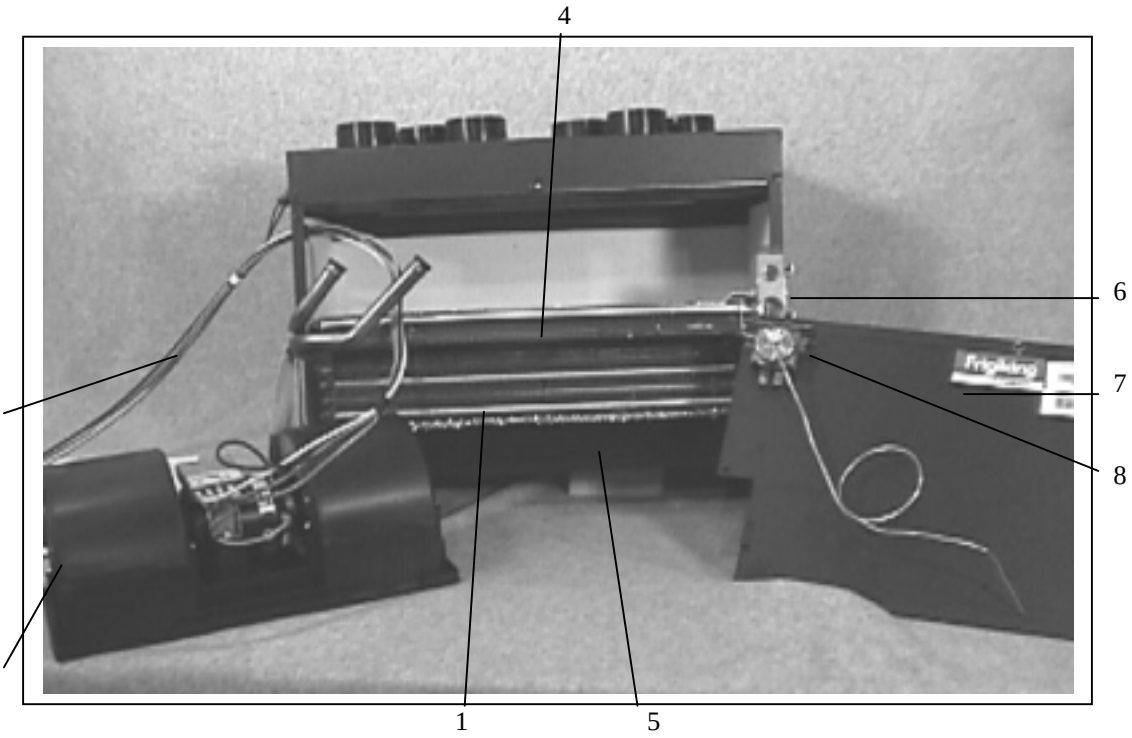
FRIGIKING POWER PAK, FMC DASH H/O PART NUMBER 66 000 089



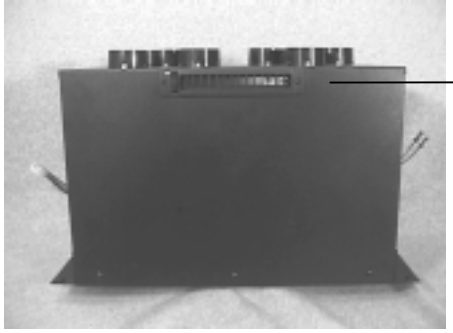
	PART NUMBER	DESCRIPTION
1	01 000 154	Harness, wire SPAL Blower
2	03 000 090	Coil, heat 42m BTU FMC
3	11 000 141	Blower Assembly, SPAL 24v dbl small
4	11 000 047	Louver, red, euro 2”

COMMERCIAL PRODUCTS SERVICE MANUAL

CAPACITY FRIGIKING LOT VEHICLES	12V H/O	PART NUMBER 66 000 095
	12V H/C	PART NUMBER 66 000 096
	24V H/O	PART NUMBER 66 000 097
	24V H/C	PART NUMBER 66 000 098

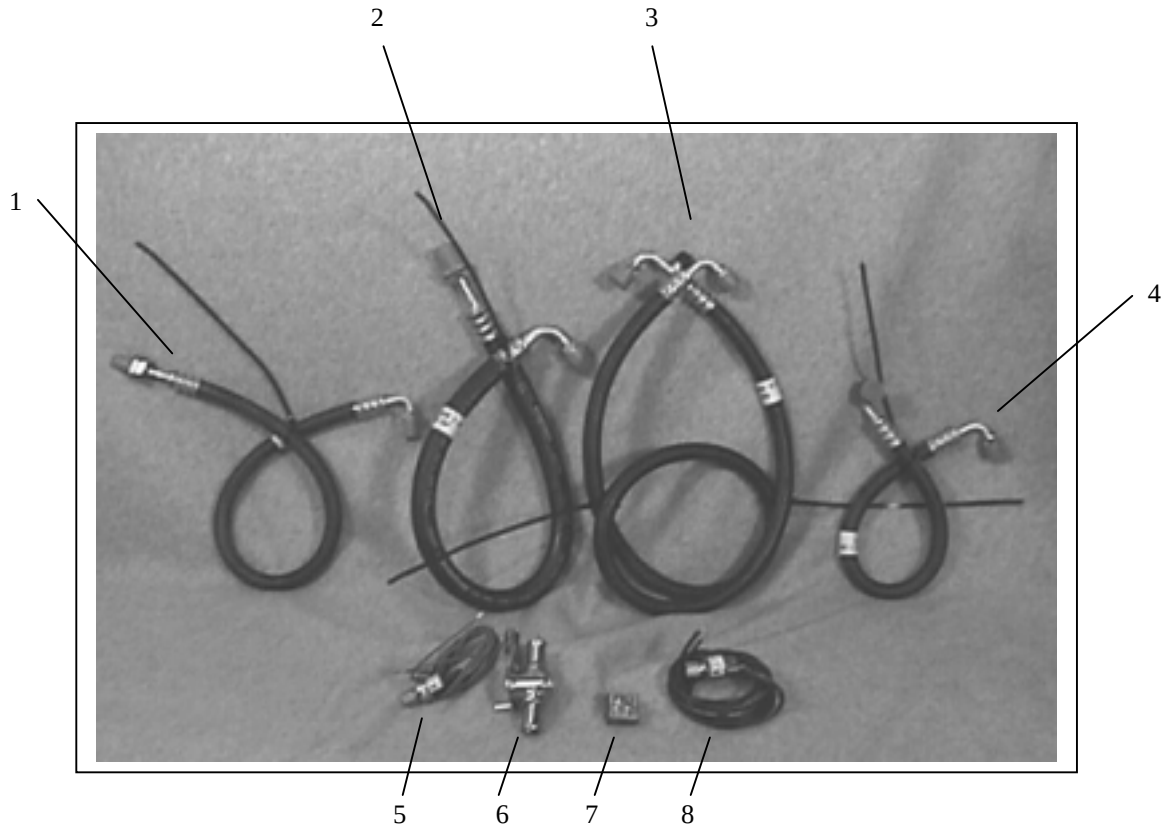


	PART NUMBER	DESCRIPTION
1	03 000 095	Coil, A/C Lot Vehicle
2	01 000 210	Harness SPAL Blower Capacity
3	68 000 006 OR	Blower Assembly, Double 12v w/seals (Ref: P/Ns 66 000 095 & 66 000 096)
	68 000 009	Blower Assembly, Double 24v w/ seals (Ref: P/Ns 66 000 097 & 66 000 098)
4	03 000 096	Coil, heat only Lot Vehicle
5	07 000 439	Pan, drain Lot Vehicle
6	68 000 024	Kit, Expansion Block valve 2ton
7	06 000 373	Cover, Coil Access
8	01 000 048	Thermostat, non-adjustable
9	11 000 097	Louver, rectangular screw-in



-For hose assembly information refer to the following pages.-

CAPACITY FRIGIKING LOT VEHICLE HOSE ASSEMBLIES
(INCLUDED WITH STANDARD KIT)



	PART NUMBER	DESCRIPTION
1	62 000 269	Hose assembly, 5/16 refrig x 2.33ft
2	62 000 267	Hose assembly, ½ refrig x 2.33ft
3	62 000 268	Hose assembly, 5/16 refrig x 4.58ft
4	62 000 270	Hose assembly, 5/16 x 1.58ft
5	01 000 211	Switch, lo-pressure
6	05 000 351	Valve, water push pull to off
7	01 000 027 AND/OR	4 position rotary switch AND/OR
	01 000 024	2 position rotary switch
8	01 000 212	Switch, high-pressure

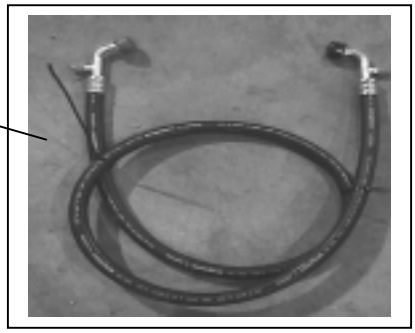
-Hose assemblies continued on next page.-

PROAIR LLC

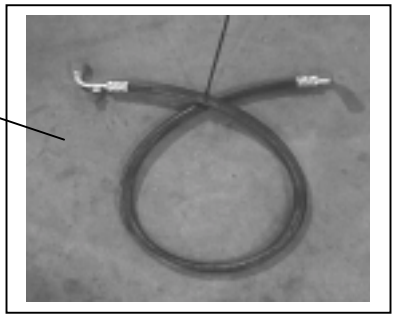
COMMERCIAL PRODUCTS SERVICE MANUAL

CAPACITY FRIGIKING LOT VEHICLE HOSE ASSEMBLIES
(OPTIONAL)

1

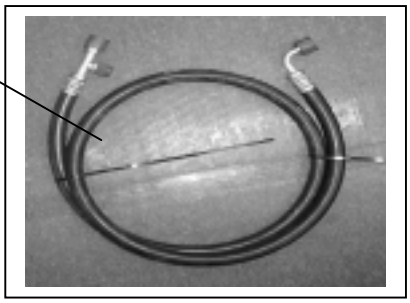


2



3

4

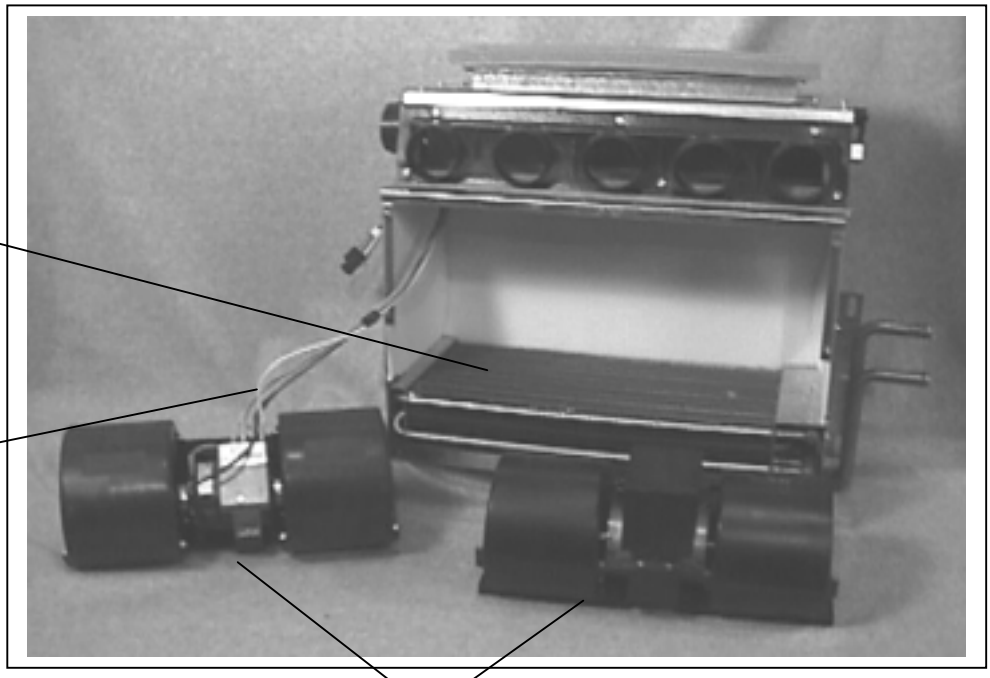


	PART NUMBER	DESCRIPTION
1	62 000 289	Hose Assembly, ½ Refrig x 6.67
2	62 000 290	Hose Assembly, 13/32 Refrig x 4.34
3	62 000 291	Hose Assembly, ½ Refrig x 8.00
4	62 000 292	Hose Assembly, 13/32 Refrig x 5.75

PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

FRIGIKING SOLO HEAT ONLY 24V PART NO. 66 000 034
FRIGIKING SOLO HEAT ONLY BRUSHLESS PART NO. 66 000 039
FRIGIKING SOLO HEAT ONLY 12V PART NO. 66 000 045



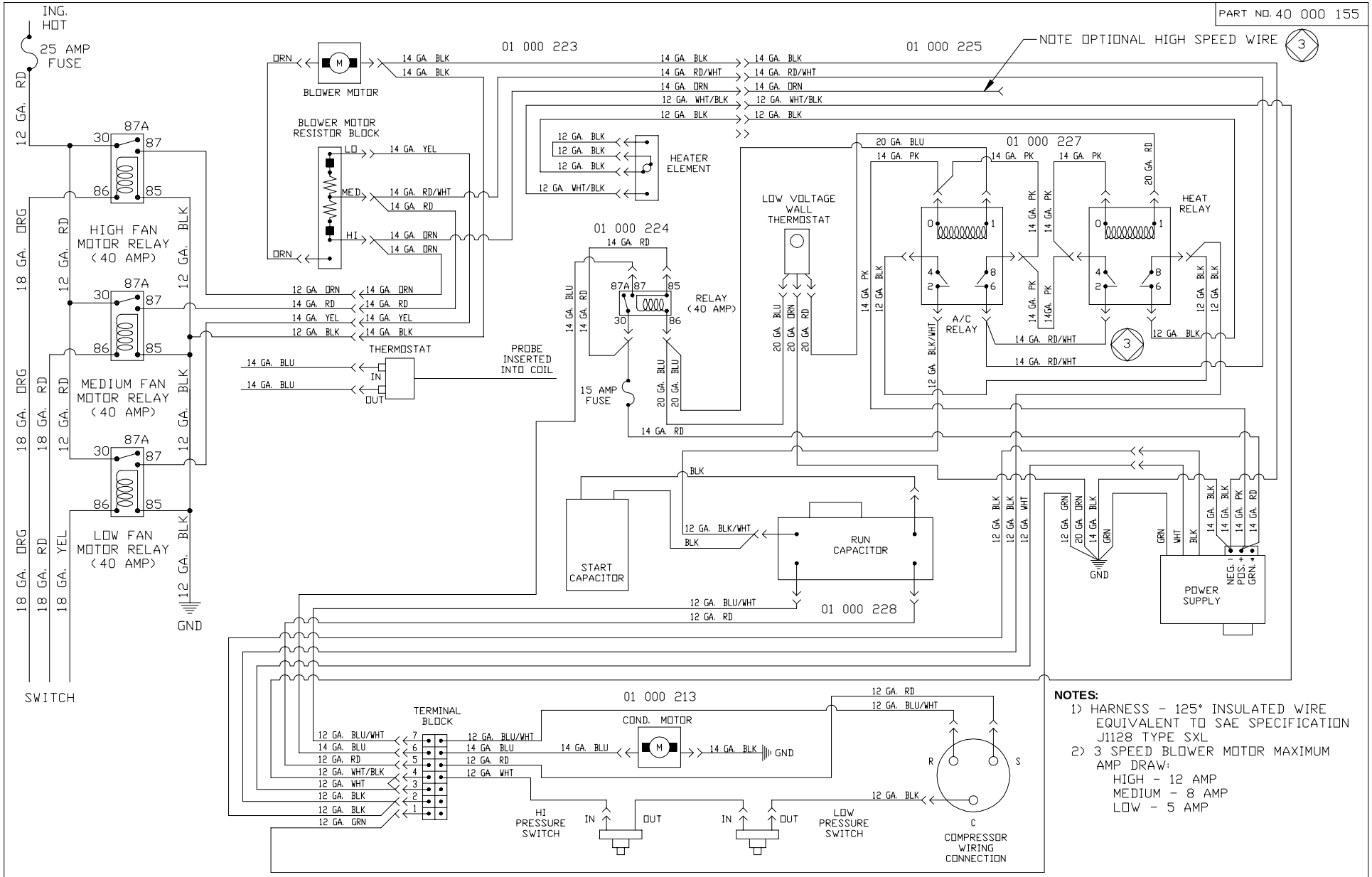
	PART NUMBER	DESCRIPTION
1	03 000 064	Coil, heat Solo
2	01 000 154	Harn, wire SPAL blwr step van
3	68 000 009	Double Blower Assembly 24v w/seals (Ref: 66 000 034)
	68 000 010	Double Blower Assembly, 24v brushless (Ref: 66 000 039)
	68 000 006	Double Blower Assembly w/seals (Ref: 66 000 045)

SCHEMATICS:

- WIRING
- WATER PLUMBING
- A/C PLUMBING
- VACUUM

WIRING SCHEMATICS:

- 110/12V H/C 40 000 155
- 420/435 STEEL HEATER 40 000 124
- 455 MOTOR 40 000 148
- 435/445/465 STEEL HTR 40 000 120
- 435/445/465/475 PLAS HTR 40 000 122
- 526/552 40 000 104
- 935 40 000 168
- 935/105 HOT WEATHER 40 000 169
- 935/106 HOT WEATHER 40 000 170
- 960 40 000 106
- BOOSTER PUMP 40 000 177
- FORD O.E.M W/(4) POS SW 40 000 153
- UNDERSEAT HEATER 40 000 123



NOTES:

1) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
2) 3 SPEED BLOWER MOTOR MAXIMUM AMP DRAW:
   HIGH - 12 AMP
   MEDIUM - 8 AMP
   LOW - 5 AMP

REV. 3

LET.	NO.	REVISION	BY	DATE
3	X	CHG ORG TO RED/WHITE ON RELAY	CWM	9/12/02
2	X	CHG. #3 & #4 ON TERMINAL BLOCK	KFS	6/26/02
1	X	RELEASED TO PRODUCTION	KFS	10/25/01

SIGNATURES	DATE
DRAWN K. F. S.	10/25/01
CHECKED K. F. S.	6/26/02
APPROVED D. M. E.	6/26/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: 110/12 VOLT WIRE SCHEMATIC

USAGE: 110/12 VOLT

PART NO. 40 000 155

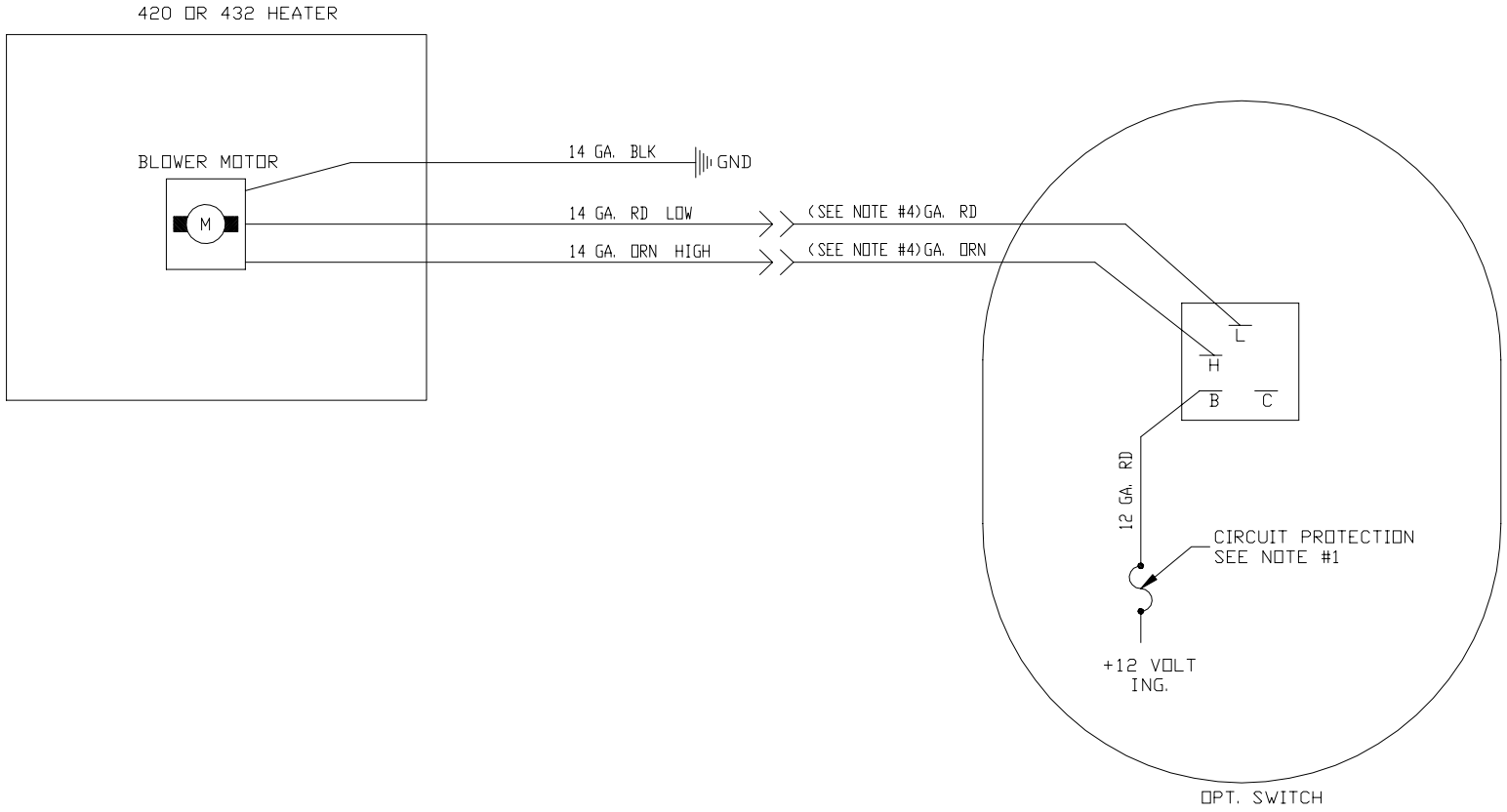
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 124

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) AMP DRAW FOR A STEEL 420 HEATER
   LOW - 2.0 AMPS @ 13.5 VOLTS
   HIGH - 3.2 AMPS @ 13.5 VOLTS
3) AMP DRAW FOR A STEEL 432 HEATER
   LOW - 2.4 AMPS @ 13.5 VOLTS
   HIGH - 4.9 AMPS @ 13.5 VOLTS
3) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
4) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH, & AMP DRAW



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	1/7/00
CHECKED	D. M. E.	1/7/00
APPROVED	M. R. Z.	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: STEEL HEATER

PART NO. 40 000 124

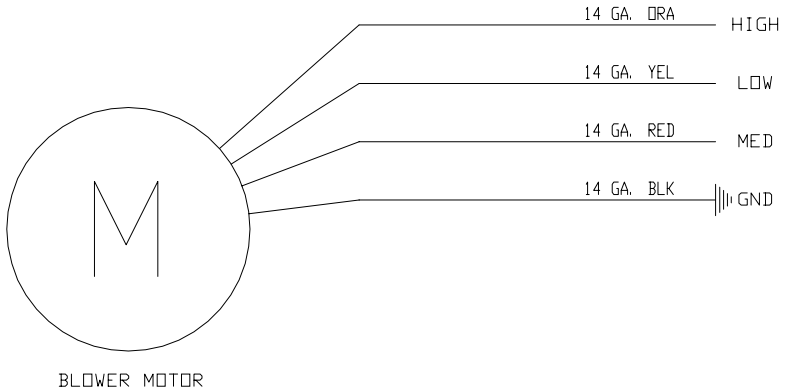
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 148

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) AMP DRAW FOR A STEEL 455 HEATER
   LOW - 7 AMPS @ 13.5 VOLTS
   MED - 11 AMPS @ 13.5 VOLTS
   HIGH - 17 AMPS @ 13.5 VOLTS
3) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
4) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH, & AMP DRAW



BLOWER MOTOR

REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED FOR USAGE	KFS	8/25/00

SIGNATURES	DATE
DRAWN K. F. S.	8/25/00
CHECKED C. W. M.	8/25/00
APPROVED D. M. E.	8/25/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: 455 HEATER

PART NO. 40 000 148

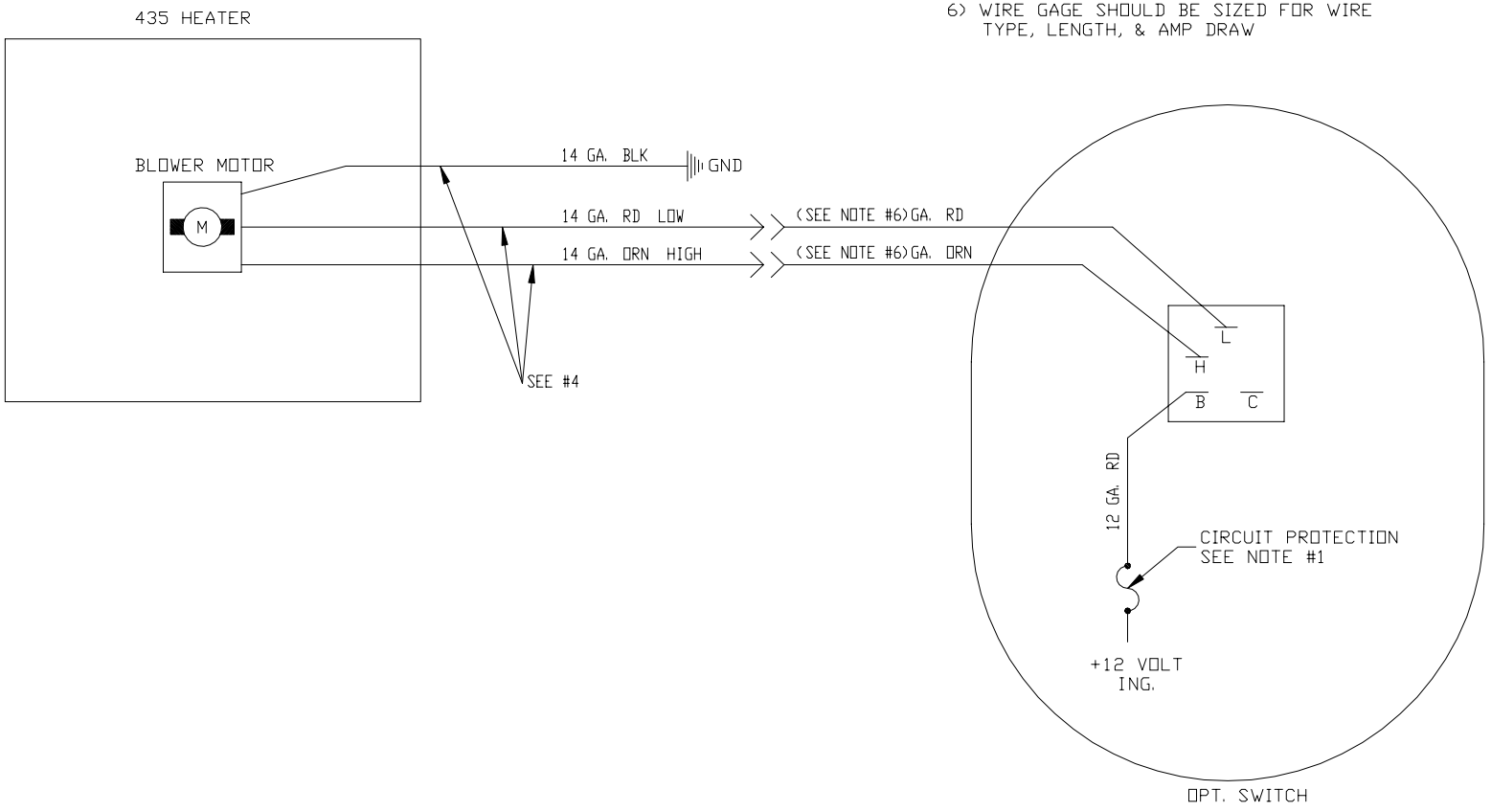
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 120

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) AMP DRAW FOR A STEEL 435 HEATER
   LOW - 2.6 AMPS @ 13.5 VOLTS
   HIGH - 5.2 AMPS @ 13.5 VOLTS
3) AMP DRAW FOR A STEEL 445/465 HEATER
   LOW - 5.2 AMPS @ 13.5 VOLTS
   HIGH - 10.4 AMPS @ 13.5 VOLTS
4) 445/465 STEEL HEATERS, HAS (2) MOTORS SO THERE IS DOUBLE THE AMOUNT OF WIRES (PUT THE SAME COLORS TOGETHER)
5) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
6) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH, & AMP DRAW



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	9/16/99
CHECKED	D. [illegible] E.	1/7/00
APPROVED	M. [illegible]	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: STEEL HEATER

PART NO. 40 000 120

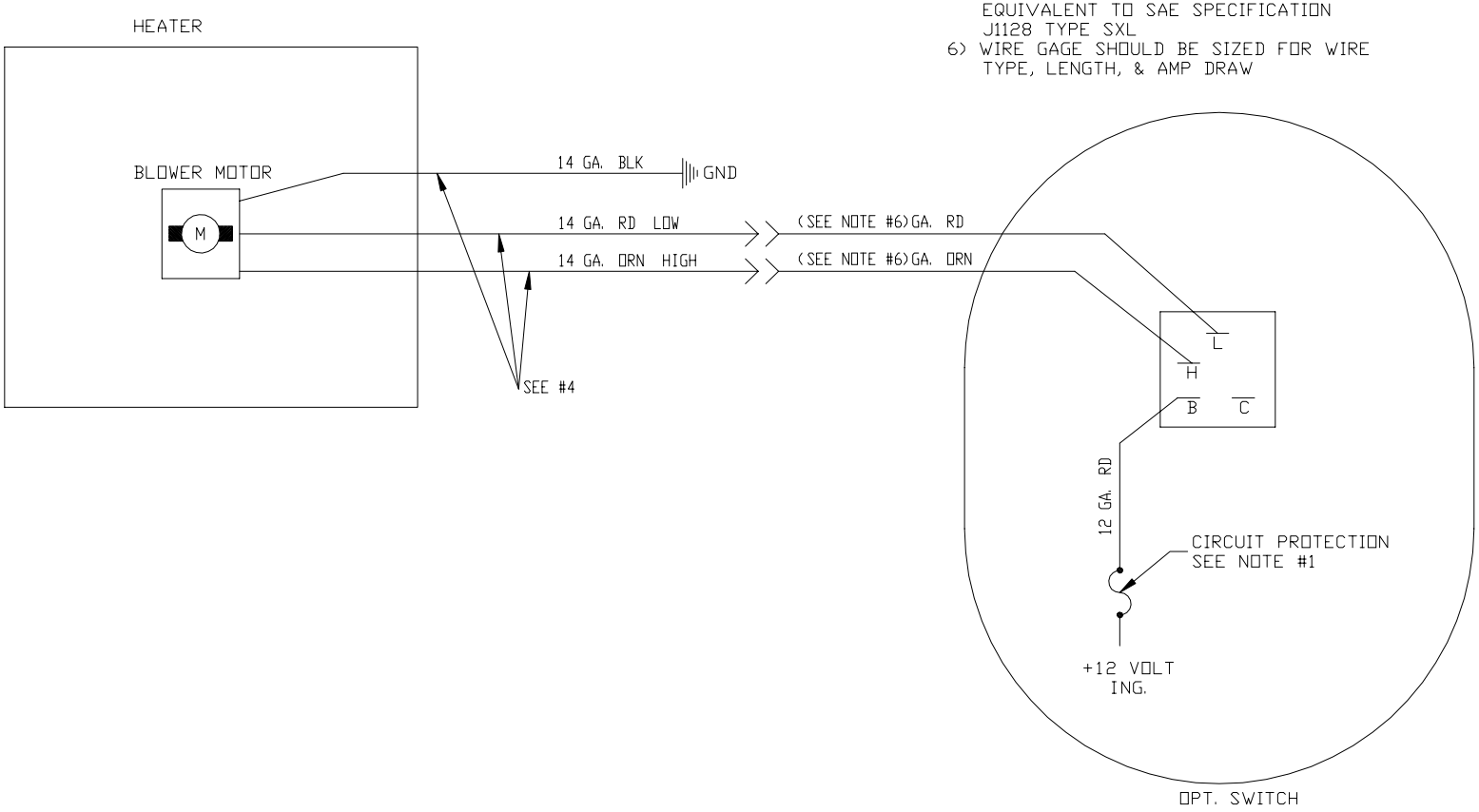
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 122

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) AMP DRAW FOR A **PLASTIC** 435/445 HEATER
   LOW - 2.4 AMPS @ 13.5 VOLTS
   HIGH - 4.9 AMPS @ 13.5 VOLTS
3) AMP DRAW FOR A **PLASTIC** 465/475 HEATER
   LOW - 4.8 AMPS @ 13.5 VOLTS
   HIGH - 9.8 AMPS @ 13.5 VOLTS
4) 465/475 **PLASTIC** HEATERS, HAS (2) MOTORS SO THERE IS DOUBLE THE AMOUNT OF WIRES (PUT THE SAME COLORS TOGETHER)
5) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
6) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH, & AMP DRAW



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	1/7/00
CHECKED	D. E.	1/7/00
APPROVED	M.	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: PLASTIC HEATER

PART NO. 40 000 122

SCALE: 1" = 1' -0" SIZE A

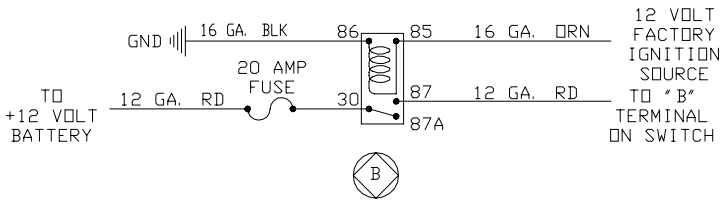
SHEET 1 OF 1

PART NO. 40 000 104

NOTE:

1) MUST BE FUSED WITH 20 AMP FUSE OR CIRCUIT BREAKER, IF IGNITION SOURCE WILL NOT HANDLE 20 AMPS USE POWER RELAY (OPTIONAL)
2) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL

OPTIONAL POWER RELAY



REV. B

LET.	NO.	REVISION	BY	DATE
B	X	UPDATE FUSE AND WIRE SIZES/ UPDATE NOTES	CWM	10/24/02
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	5/11/99
CHECKED	C. W. M.	10/24/02
APPROVED	D. M. E.	10/24/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: CARGO BOX 526 / 552

PART NO. 40 000 104

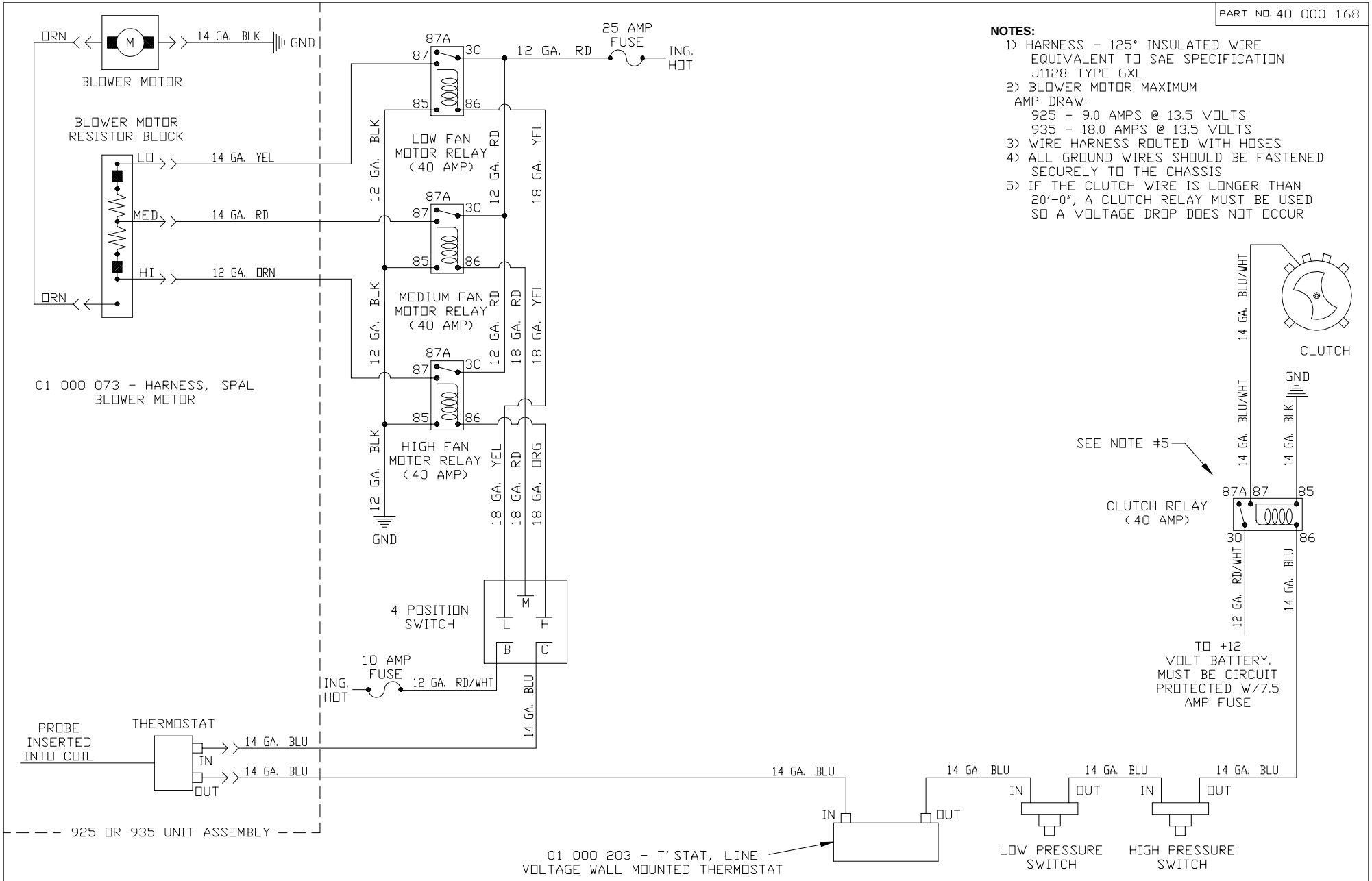
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 168

NOTES:

1) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE GXL
2) BLOWER MOTOR MAXIMUM AMP DRAW:
   925 - 9.0 AMPS @ 13.5 VOLTS
   935 - 18.0 AMPS @ 13.5 VOLTS
3) WIRE HARNESS ROUTED WITH HOSES
4) ALL GROUND WIRES SHOULD BE FASTENED SECURELY TO THE CHASSIS
5) IF THE CLUTCH WIRE IS LONGER THAN 20'-0", A CLUTCH RELAY MUST BE USED SO A VOLTAGE DROP DOES NOT OCCUR



REV. X

LET.	NO.	REVISION	BY	DATE
1	X-02	PROTO ISSUE	KFS	2/21/02

SIGNATURES		DATE
DRAWN	K. F. S.	2/21/02
CHECKED	K. F. S.	2/21/02
APPROVED	D. M. E.	2/21/02

PRO AIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

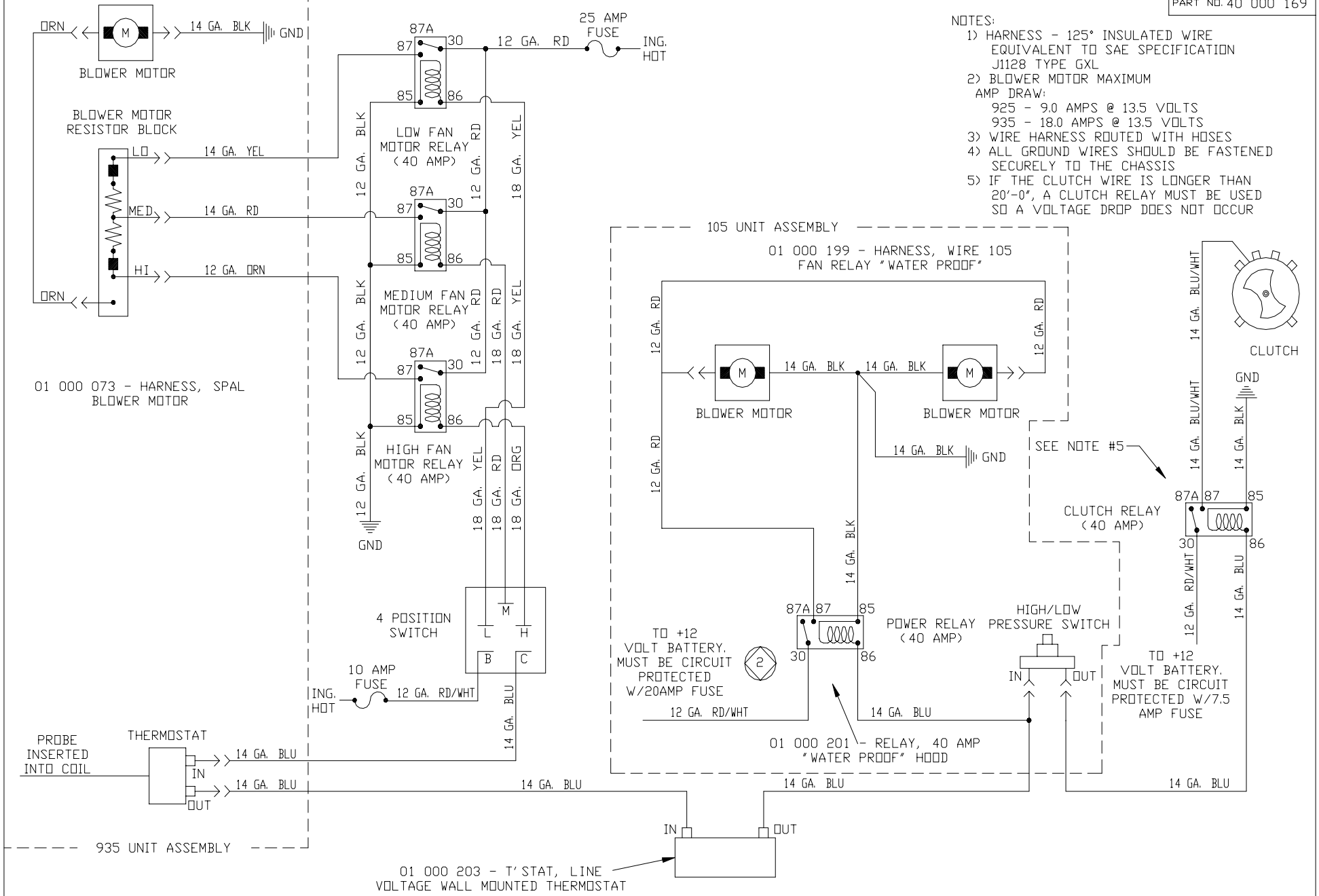
USAGE: 935

PART NO. 40 000 168

SCALE: 1" = 1'-0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 169



NOTES:
1) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE GXL
2) BLOWER MOTOR MAXIMUM AMP DRAW:
   925 - 9.0 AMPS @ 13.5 VOLTS
   935 - 18.0 AMPS @ 13.5 VOLTS
3) WIRE HARNESS ROUTED WITH HOSES
4) ALL GROUND WIRES SHOULD BE FASTENED SECURELY TO THE CHASSIS
5) IF THE CLUTCH WIRE IS LONGER THAN 20'-0", A CLUTCH RELAY MUST BE USED SO A VOLTAGE DROP DOES NOT OCCUR

REV. 2

LET.	NO.	REVISION	BY	DATE
2	X	CHG COND CIRCUIT PROTECTION AMP RATING	CWM	10/21/02
1	X-02	PROTO ISSUE	KFS	2/21/02

SIGNATURES		DATE
DRAWN	K. F. S.	2/21/02
CHECKED	C. W. M.	10/21/02
APPROVED	D. M. E.	10/21/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC HOT WEATHER

USAGE: 935 & 105

PART NO. 40 000 169

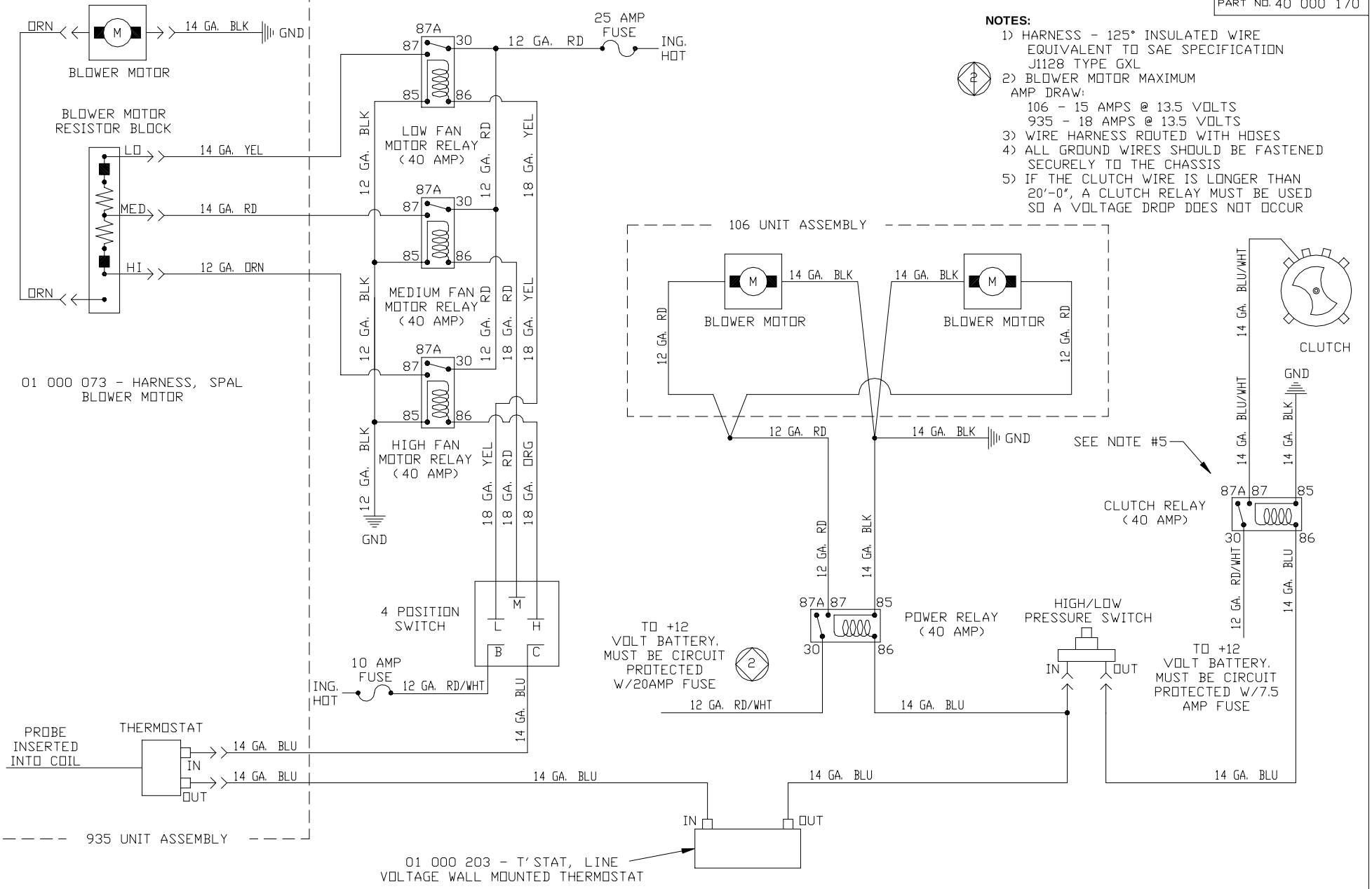
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 170

NOTES:

1) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE GXL
2) BLOWER MOTOR MAXIMUM AMP DRAW:
   106 - 15 AMPS @ 13.5 VOLTS
   935 - 18 AMPS @ 13.5 VOLTS
3) WIRE HARNESS ROUTED WITH HOSES
4) ALL GROUND WIRES SHOULD BE FASTENED SECURELY TO THE CHASSIS
5) IF THE CLUTCH WIRE IS LONGER THAN 20'-0", A CLUTCH RELAY MUST BE USED SO A VOLTAGE DROP DOES NOT OCCUR



REV. 2

LET.	NO.	REVISION	BY	DATE
2	X	CHG COND AMP RATING/FUSE RATING SIZE	CWM	10/21/02
1	X-02	PROTO ISSUE	KFS	2/22/02

SIGNATURES		DATE
DRAWN	K. F. S.	2/22/02
CHECKED	C. W. M.	10/21/02
APPROVED	D. M. E.	10/21/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC HOT WEATHER

USAGE: 935 & 106

PART NO. 40 000 170

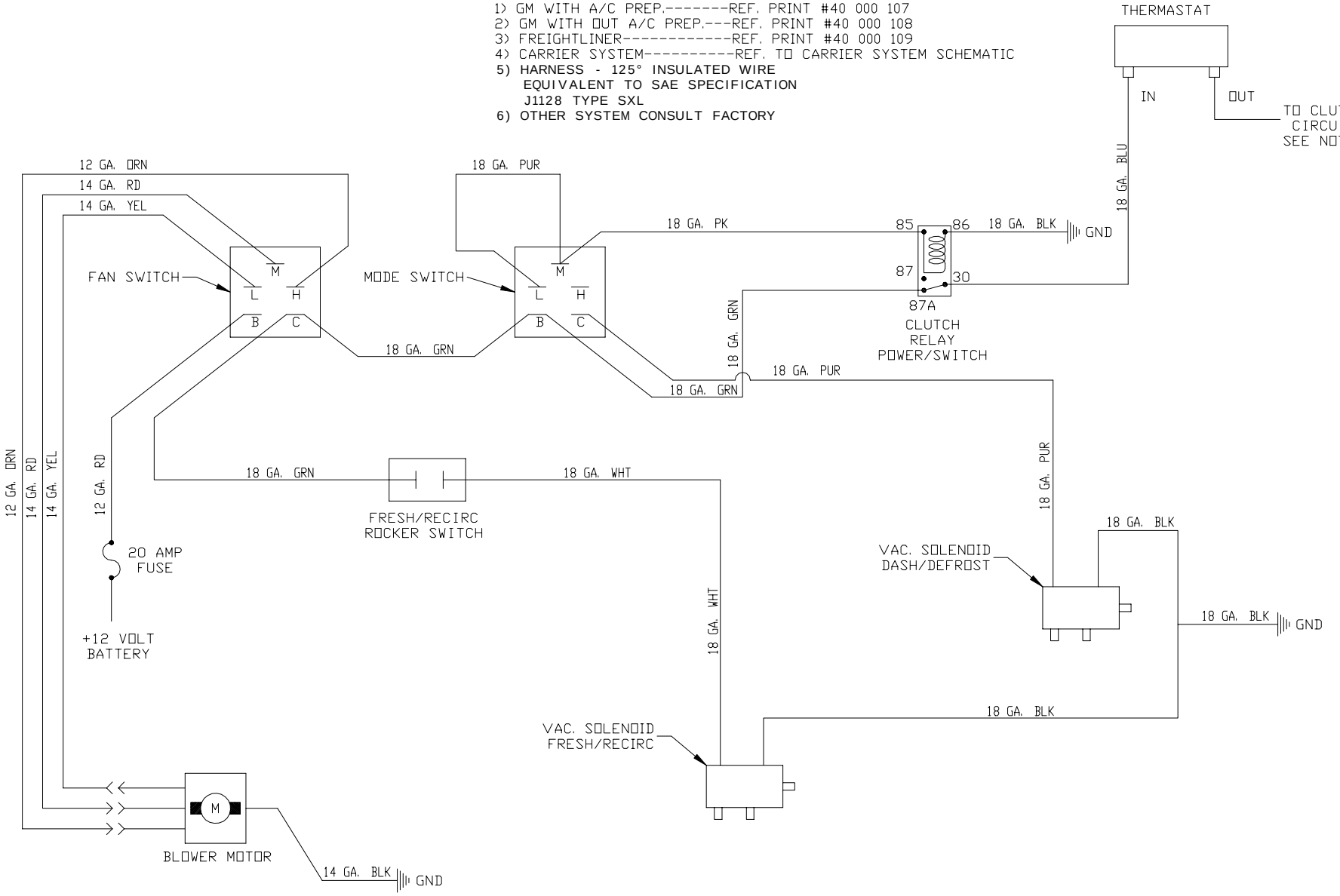
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 106

NOTES:

1) GM WITH A/C PREP.-------REF. PRINT #40 000 107
2) GM WITH OUT A/C PREP.---REF. PRINT #40 000 108
3) FREIGHTLINER----------REF. PRINT #40 000 109
4) CARRIER SYSTEM---------REF. TO CARRIER SYSTEM SCHEMATIC
5) HARNESS - 125° INSULATED WIRE
   EQUIVALENT TO SAE SPECIFICATION
   J1128 TYPE SXL
6) OTHER SYSTEM CONSULT FACTORY



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	5/11/99
CHECKED	E.	1/7/00
APPROVED	R. Z.	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

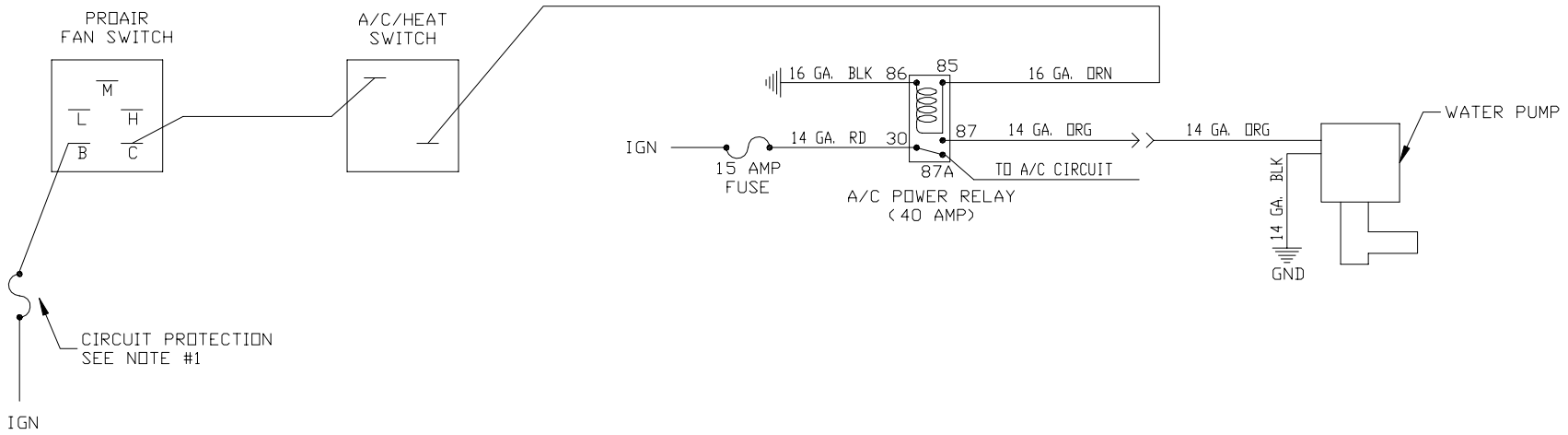
USAGE: 960 - DASH UINT

PART NO. 40 000 106
SCALE: 1" = 1' -0" SIZE A
SHEET 1 OF 1

PART NO. 40 000 177

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
3) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH & AMP DRAW



REV. A

LET.	NO.	REVISION	BY	DATE
A	X	RELEASED FOR USAGE	KFS	3/18/02

SIGNATURES		DATE
DRAWN	K. F. S.	3/18/02
CHECKED	K. F. S.	3/18/02
APPROVED	D. M. E.	3/18/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: BOOSTER PUMP

PART NO. 40 000 177

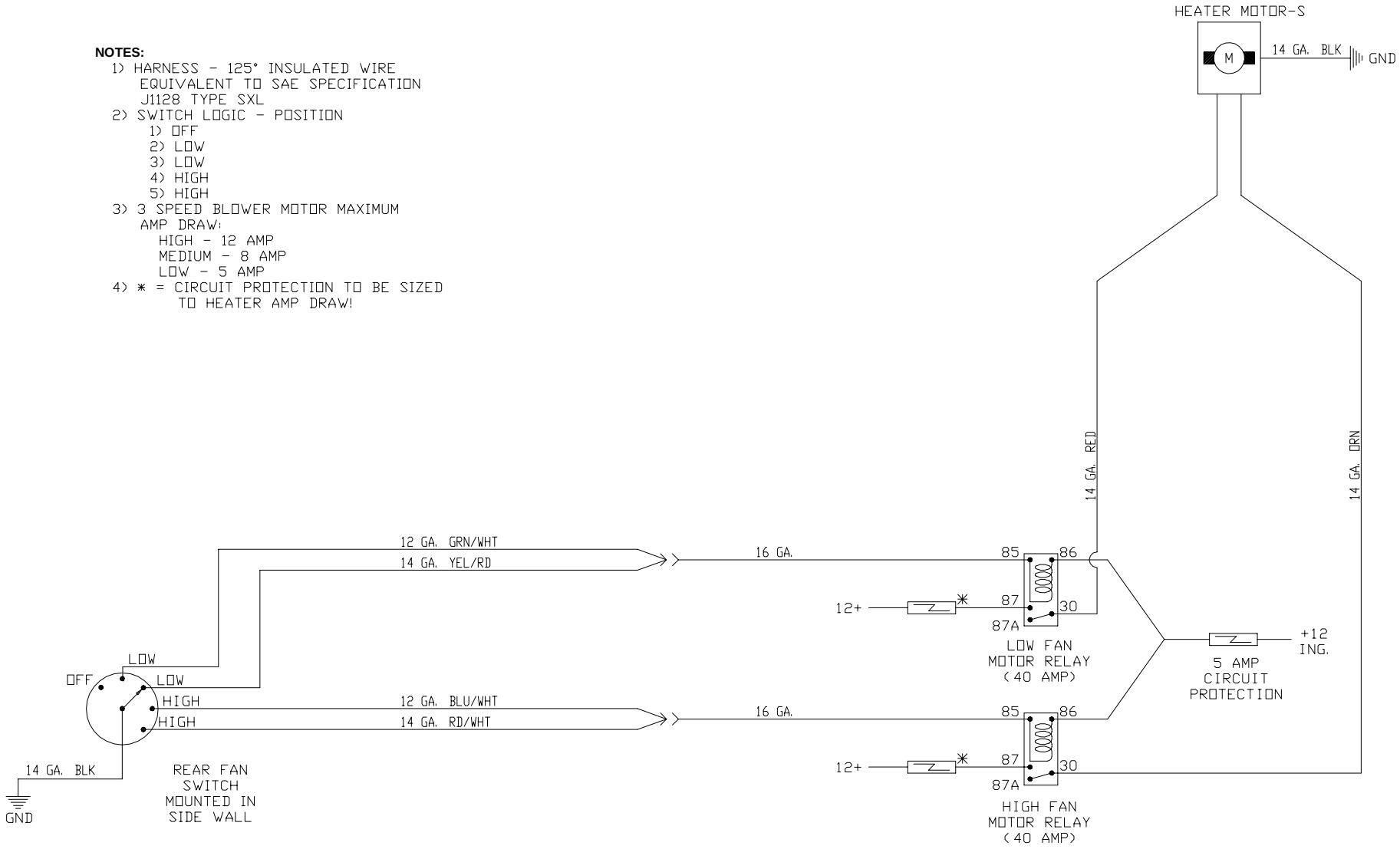
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 153

NOTES:

1) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
2) SWITCH LOGIC - POSITION
   1) OFF
   2) LOW
   3) LOW
   4) HIGH
   5) HIGH
3) 3 SPEED BLOWER MOTOR MAXIMUM AMP DRAW:
   HIGH - 12 AMP
   MEDIUM - 8 AMP
   LOW - 5 AMP
4) * = CIRCUIT PROTECTION TO BE SIZED TO HEATER AMP DRAW!



REV. A

LET.	NO.	REVISION	BY	DATE
A	00- X	RELEASED TO PRODUCTION	KFS	10/16/00

SIGNATURES		DATE
DRAWN	K. F. S.	10/16/00
CHECKED	C. W. M.	10/16/00
APPROVED	D. M. E.	10/16/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: HEATER WIRING SCHEMATIC

USAGE: FORD O. E. M. W/4 POS. SWITCH

PART NO. 40 000 153

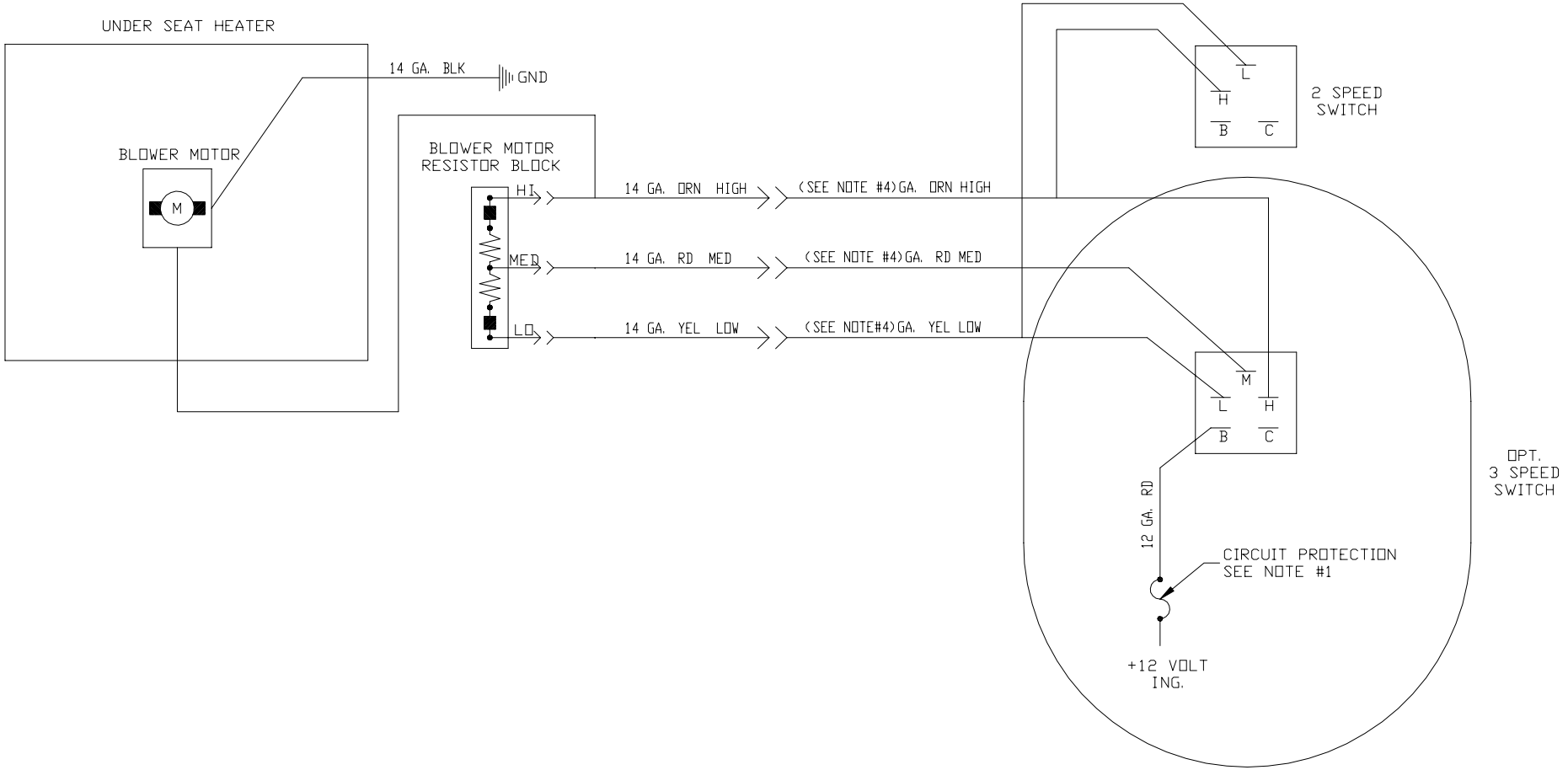
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 123

NOTES:

1) CIRCUIT PROTECTION MUST BE CORRECT FOR AMP DRAW
2) AMP DRAW FOR A STEEL UNDER SEAT HEATER 2 OR 3 SPEED SWITCH
   LOW - 2.8 AMPS @ 13.5 VOLTS
   MED. - 3.1 AMPS @ 13.5 VOLTS
   HIGH - 6.3 AMPS @ 13.5 VOLTS
3) HARNESS - 125° INSULATED WIRE EQUIVALENT TO SAE SPECIFICATION J1128 TYPE SXL
4) WIRE GAGE SHOULD BE SIZED FOR WIRE TYPE, LENGTH, & AMP DRAW



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	1/7/00
CHECKED	D. E.	1/7/00
APPROVED	M.	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: WIRE SCHEMATIC

USAGE: UNDER SEAT HEATER

PART NO. 40 000 123

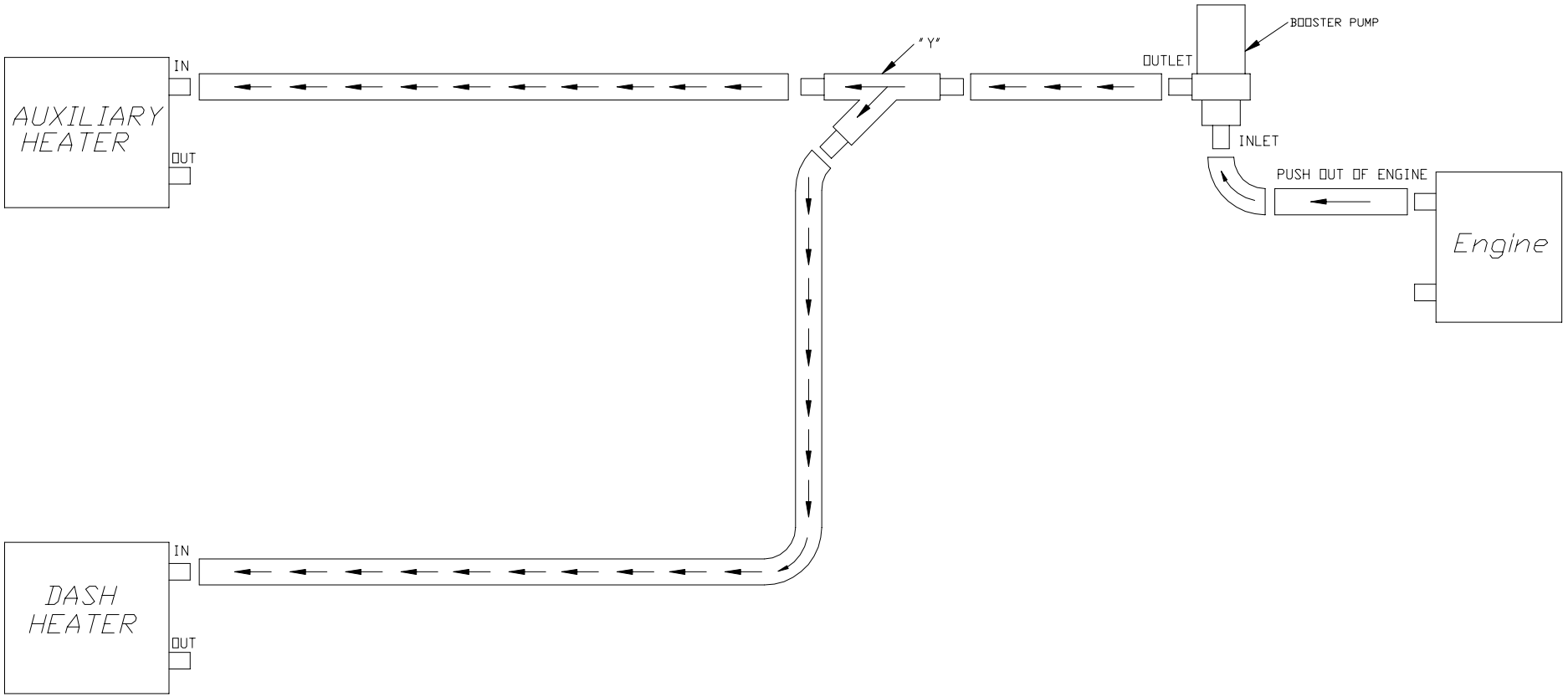
SCALE: 1" = 1' -0" SIZE A

SHEET 1 OF 1

WATER PLUMBING SCHEMATICS:

- BOOSTER PUMP - 40 000 167
- DASH & STANDARD HEATER 40 000 172
- BUS DASH & AUX HTR 40 00 154
- BUS DASH CNTRLD, STEP & AUX HTR DASH 40 000 151
- BUS DASH, STEP & (2) AUX HTR 40 000 150
- BUS DASH, STEP & AUX HTR 40 000 149

PART NO. 40 000 167



REV. 1

LET.	NO.	REVISION	BY	DATE
1	00-X	PROTO ISSUE	KFS	2/19/02

SIGNATURES	DATE
DRAWN K. F. S.	2/19/02
CHECKED K. F. S.	2/19/02
APPROVED D. M. E.	2/19/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: BOOSTER PUMP PLUMBING SCHEMATIC

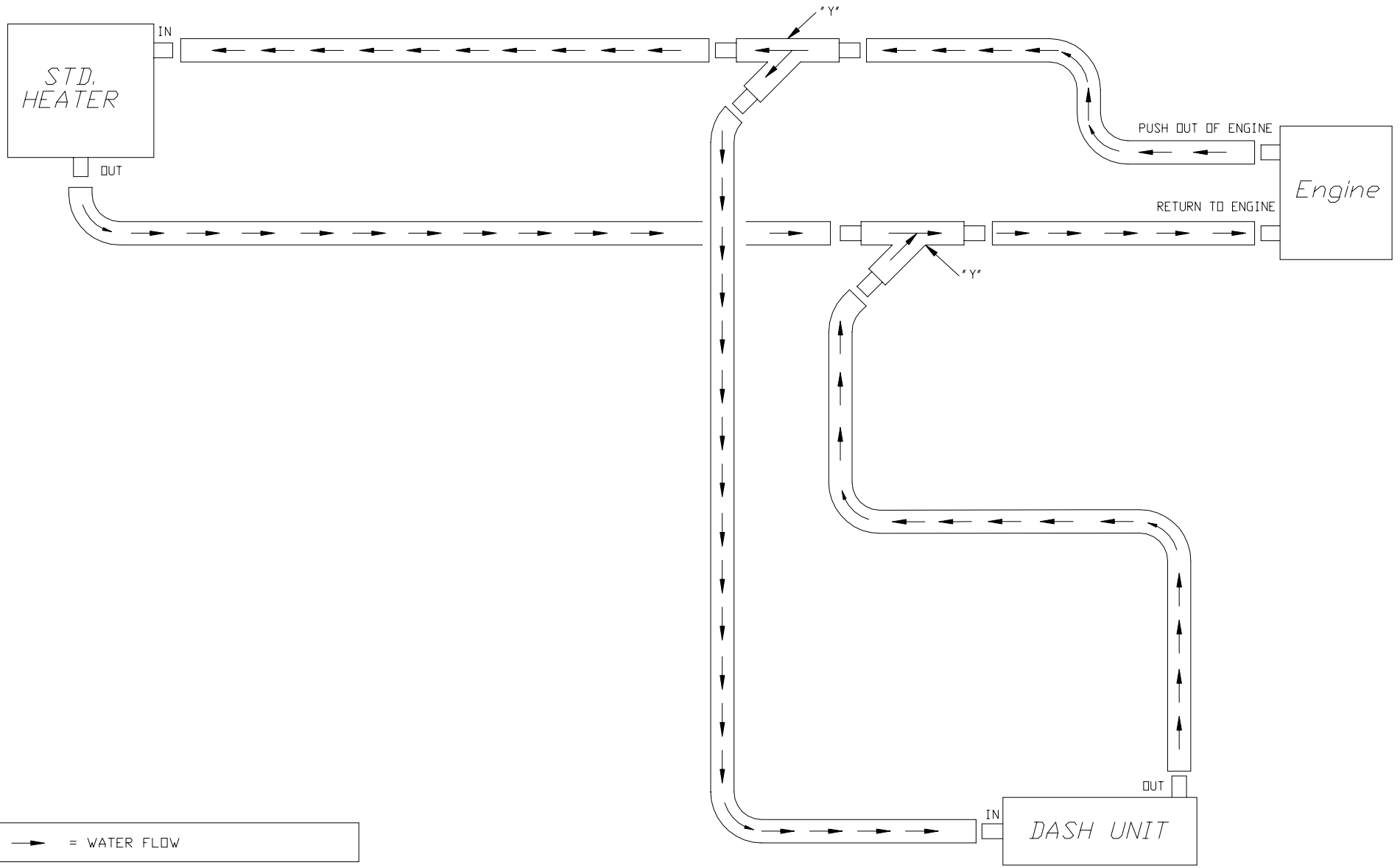
USAGE: X

PART NO. 40 000 167

SCALE: 3/8" = 1" SIZE A

SHEET 1 OF 1

PART NO. 40 000 172



REV. 1

LET.	NO.	REVISION	BY	DATE
1	02-X	PROTO ISSUE	KFS	2/26/02

SIGNATURES	DATE
DRAWN K. F. S.	2/26/02
CHECKED K. F. S.	2/26/02
APPROVED D. M. E.	2/26/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, WATER PLUMBING

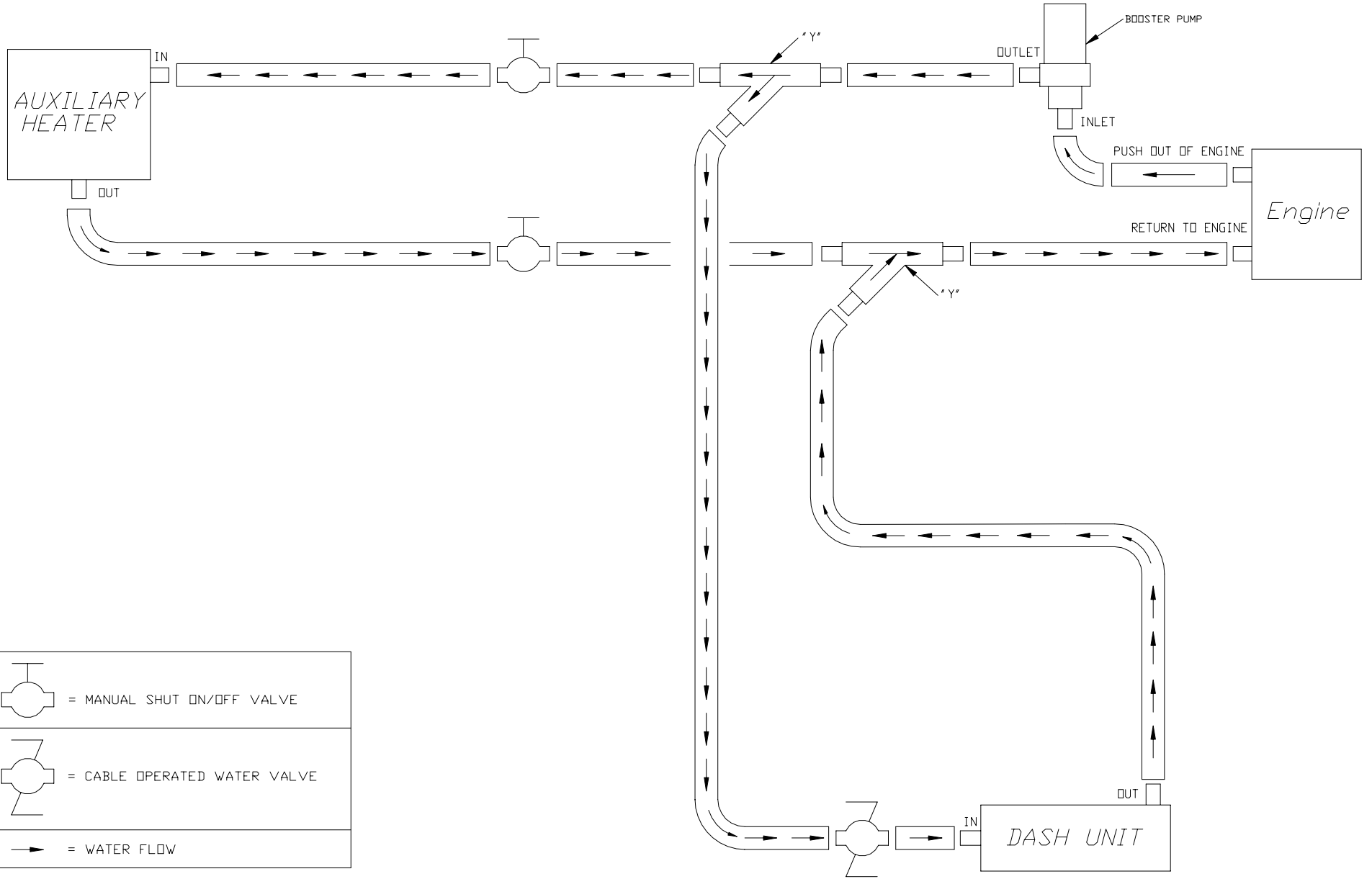
USAGE: DASH & STD. HEATER UNIT

PART NO. 40 000 172

SCALE: 3/8" = 1" SIZE A

SHEET 1 OF 1

PART NO. 40 000 154



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED TO PRODUCTION	CWM	06/06/01

SIGNATURES		DATE
DRAWN	C. W. M	06/06/01
CHECKED	C. W. M.	06/06/01
APPROVED	D. M. E.	06/06/01

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: GENERAL BUS PLUMBING SCHEMATIC

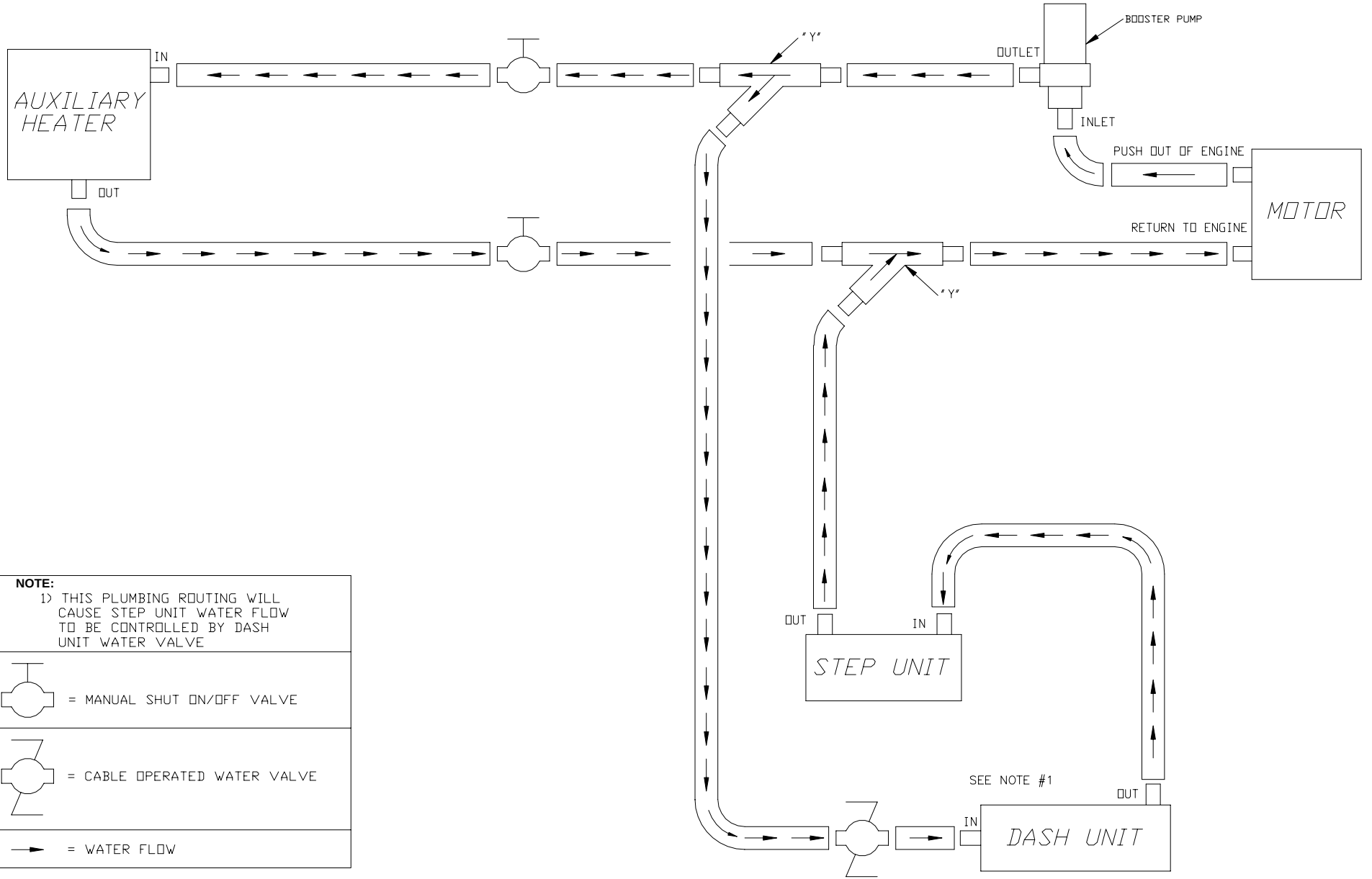
USAGE: DASH & AUXILIARY HEATER UNIT

PART NO. 40 000 154

SCALE: 3/8" =1" SIZE A

SHEET 1 OF 1

PART NO. 40 000 151



NOTE:
1) THIS PLUMBING ROUTING WILL CAUSE STEP UNIT WATER FLOW TO BE CONTROLLED BY DASH UNIT WATER VALVE

= MANUAL SHUT ON/OFF VALVE

= CABLE OPERATED WATER VALVE

= WATER FLOW

REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED TO PRODUCTION	KFS	10/6/00

SIGNATURES		DATE
DRAWN	K. F. S.	10/6/00
CHECKED	C. W. M.	10/6/00
APPROVED	D. M. E.	10/6/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: GENERAL BUS PLUMBING SCHEMATIC

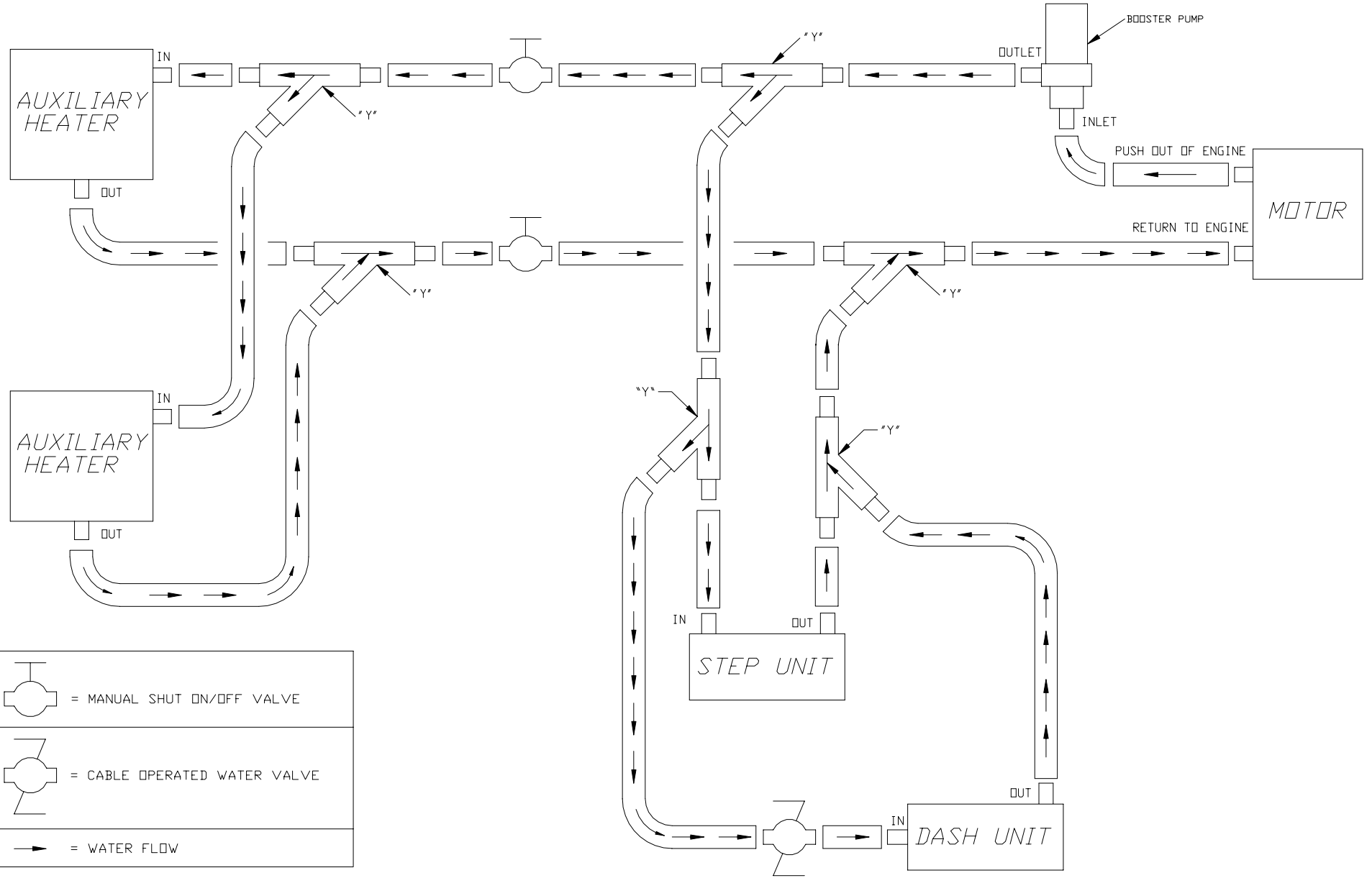
USAGE: DASH, STEP, & AUXILIARY HEATER UNIT

PART NO. 40 000 151

SCALE: 3/8" = 1" SIZE A

SHEET 1 OF 1

PART NO. 40 000 150



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED TO PRODUCTION	KFS	10/6/00

SIGNATURES	DATE
DRAWN K. F. S.	10/6/00
CHECKED C. W. M.	10/6/00
APPROVED D. M. E.	10/6/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: GENERAL BUS PLUMBING SCHEMATIC

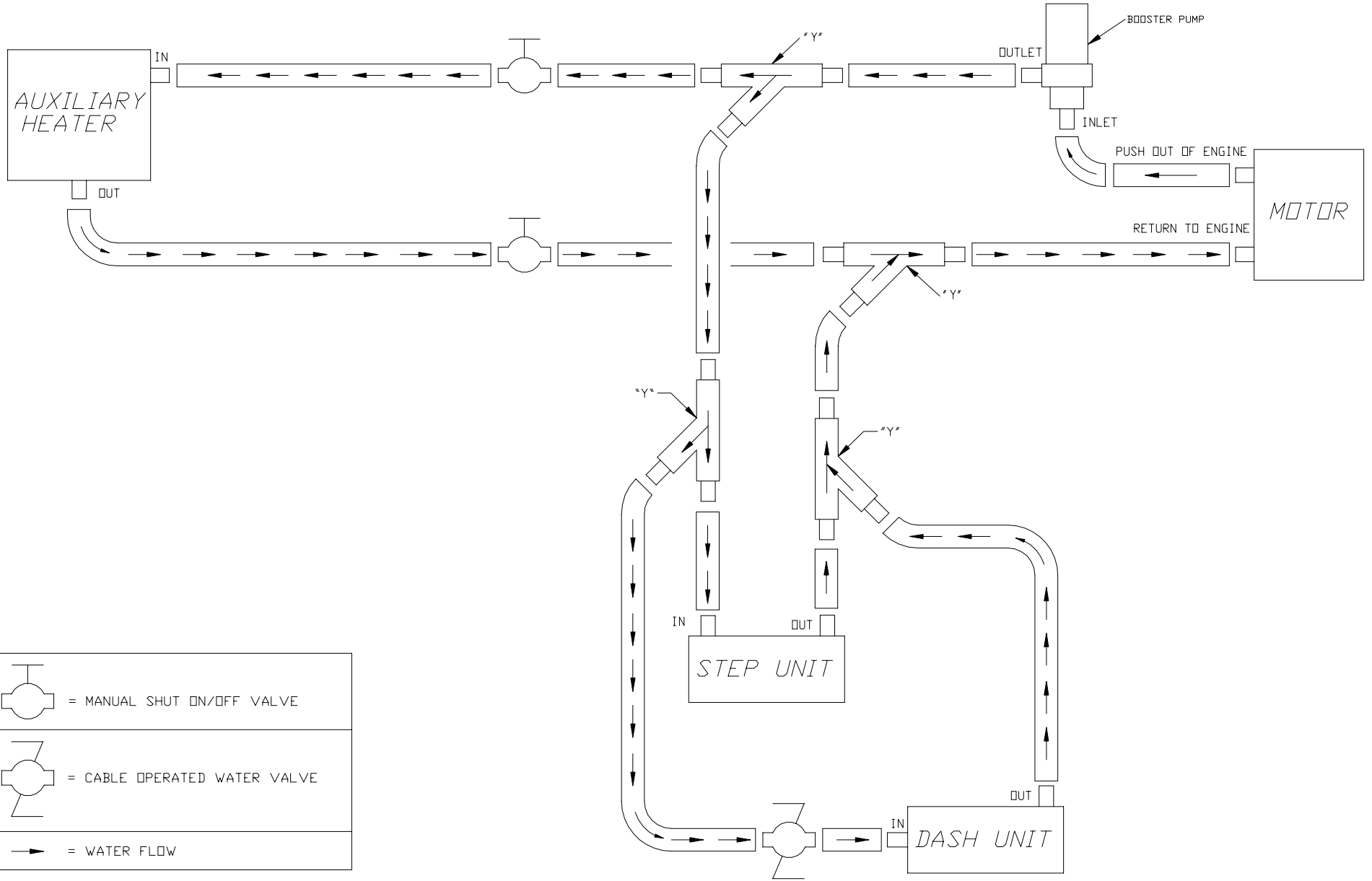
PART NO. 40 000 150

SCALE: 3/8" = 1" SIZE A

USAGE: DASH, STEP, & (2) AUXILIARY HEATER UNITS

SHEET 1 OF 1

PART NO. 40 000 149



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED TO PRODUCTION	KFS	10/6/00

SIGNATURES	DATE
DRAWN K. F. S.	10/6/00
CHECKED C. W. M.	10/6/00
APPROVED D. M. E.	10/6/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: GENERAL BUS PLUMBING SCHEMATIC

USAGE: DASH, STEP, & AUXILIARY HEATER UNIT

PART NO. 40 000 149

SCALE: 3/8" = 1" SIZE A

SHEET 1 OF 1

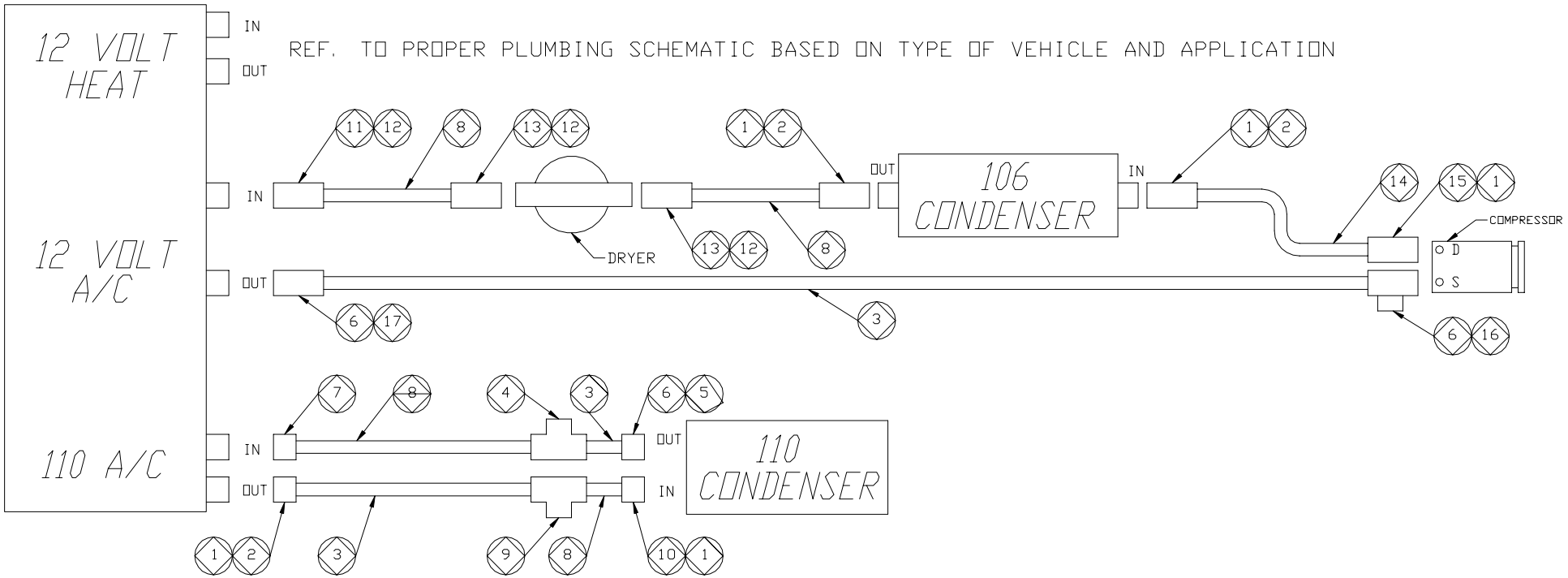
A/C PLUMBING SCHEMATICS:

- 110/12V H/C-106 - 40 000 165
- 110/12V H/C - 40 000 166
- 925/935/940 E SERIES PRECHRGD 40 000 173
- 925/935/940 STANDARD 40 000 174
- 935/940 - 105 HOT WEATHER 40 000 171
- 935/940 - 106 HOT WEATHER 40 000 147
- 935/940 - 106 HT WTHR FRTLNR 40 000 185
- BUS CMPRSSR AUX/REAR UNIT 40 000 152

PART NO. 40 000 165

110/12 VOLT H/C UNIT

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	5	08 000 008	O-RING #8 13/32"	11	1	05 000 108	ELL, 90° 6 MALE O-RING x 6 HOSE
2	3	05 000 150	ELL, 90 #8 x #8 FOR	12	3	08 000 009	O-RING #6 5/16"
3	AR	04 000 016	HOSE, 1/2 ID REFRIG-BULK	13	2	05 000 027	ELL, 90° x 5/16" O-RING
4	1	05 000 359	SPLICE, # 8 x # 8 BL W/R-12 PORT	14	AR	04 000 033	HOSE, 13/32 BARRIER REFRIG-BULK
5	1	05 000 357	ELL, 90 #10 FOR x 8 BL	15	1	05 000 151	ELL, 90° #8 x 8 FOR W/SP
6	3	08 000 006	O-RING #10 1/2"	16	1	05 000 024	ELL, 90° x 1/2 W/SV
7	1	05 000 358	ELL, 90 # 6 FEMALE FLARE x # 6 BL	17	1	05 000 078	ELL, 90 x 1/2" MALE O-RING
8	AR	04 000 017	HOSE, 5/16 ID REFRIG- BULK	18			
9	1	05 000 356	SPLICE, # 6 x # 6 BL W/R-12 PORT	19			
10	1	05 000 012	ELL, 90 x 5/16 FOR	20			



REV. 1

LET.	NO.	REVISION	BY	DATE
1	02-X	RELEASED TO PRODUCTION	KFS	1/22/02

SIGNATURES		DATE
DRAWN	K. F. S.	1/18/02
CHECKED	K. F. S.	1/22/02
APPROVED	D. M. E.	1/22/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING 110/12 VOLT H/C UNIT

PART NO. 40 000 165

SCALE: 3/4" = 1' -0" SIZE A

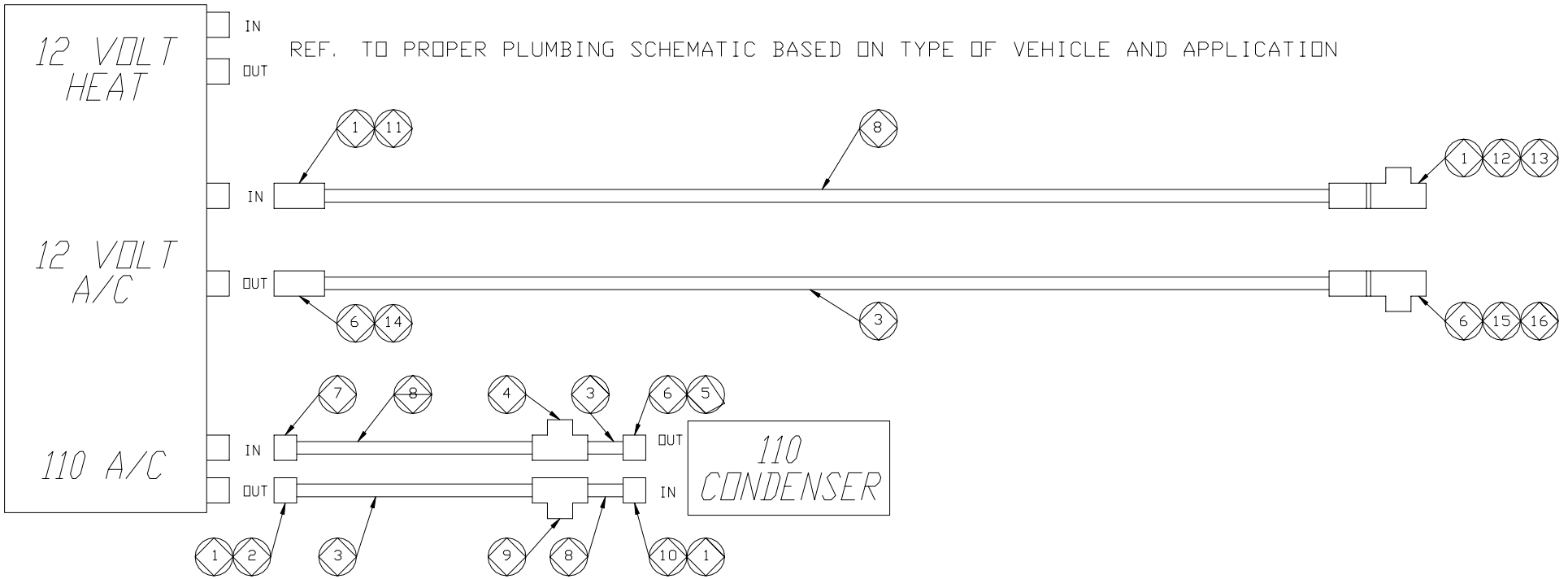
USAGE: GENERAL HOT WEATHER KIT

SHEET 1 OF 1

PART NO. 40 000 166

110/12 VOLT H/C UNIT

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	4	08 000 008	O-RING #8 13/32"	11	1	05 000 015	ST, 5/16 MALE O-RING
2	1	05 000 150	ELL, 90 #8 x #8 FOR	12	1	05 000 087	STRT, #8 FOR x #6BL
3	AR	04 000 016	HOSE, 1/2 ID REFRIG-BULK	13	1	05 000 068	VALVE, O-RING, TUBE LIQUID-FORD
4	1	05 000 359	SPLICE, # 8 x # 8 BL W/R-12 PORT	14	1	05 000 011	ST, 1/2 MALE O-RING
5	1	05 000 357	ELL, 90 #10 FOR x 8 BL	15	1	05 000 086	FIT, STR 1/2 FEM O-RING W/SV
6	3	08 000 006	O-RING #10 1/2"	16	1	05 000 069	VALVE, O-RING TUBE SUCT-FORD
7	1	05 000 358	ELL, 90 # 6 FEMALE FLARE x # 6 BL	17			
8	AR	04 000 017	HOSE, 5/16 ID REFRIG- BULK	18			
9	1	05 000 356	SPLICE, # 6 x # 6 BL W/R-12 PORT	19			
10	1	05 000 012	ELL, 90 x 5/16 FOR	20			



REV. 1

LET.	NO.	REVISION	BY	DATE
1	02-X	RELEASED TO PRODUCTION	KFS	1/22/02

SIGNATURES		DATE
DRAWN	K. F. S.	1/22/02
CHECKED	K. F. S.	1/22/02
APPROVED	D. M. E.	1/22/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING 110/12 VOLT H/C UNIT

USAGE: FORD - H/C W/PREP.

PART NO. 40 000 166

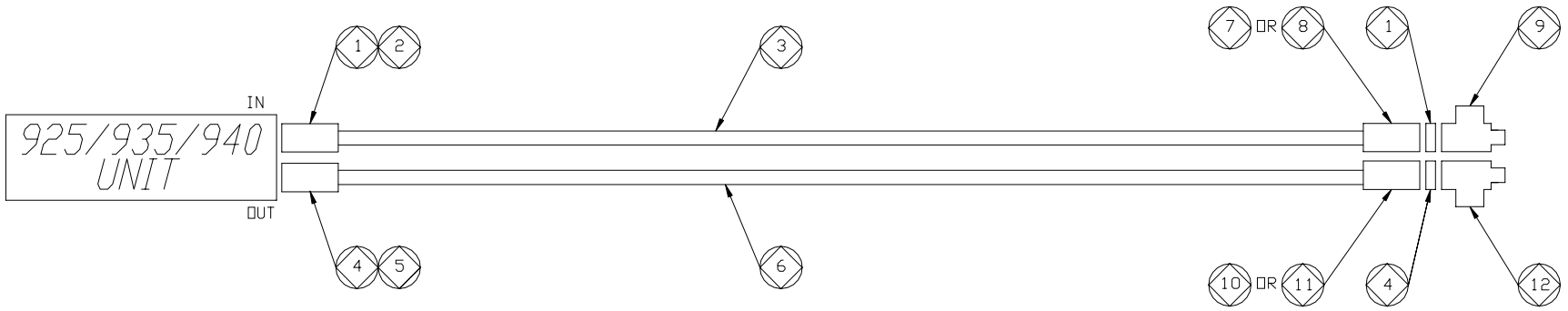
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 173

925/935/940 E-SERIES PRECHARGED

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	2	08 000 009	O-RING #6 5/16"	11	1	05 000 013	Ell, 90 x 1/2 FOR BL W/SV
2	1	05 000 015	ST, 5/16 MALE O-RING	12	1	05 000 069	VALVE, O-RING, TUBE SUCTION-FORD
3	AR	04 000 017	HOSE, 5/16 ID REFRIG- BULK	13			
4	2	08 000 006	O-RING #10 1/2"	14			
5	1	05 000 011	ST, 1/2 MALE O-RING	15			
6	AR	04 000 016	HOSE, 1/2 ID REFRIG-BULK	16			
7	1	05 000 087	STRT, #8 FOR x #6BL	17			
8	1	05 000 012	ELL, 90 x 5/16 FOR	18			
9	1	05 000 068	VALVE, O-RING, TUBE LIQUID-FORD	19			
10	1	05 000 086	FIT, STR 1/2 FEM O-RING W/SV	20			



REV. 1

LET.	NO.	REVISION	BY	DATE
X	02-X	PROTO ISSUE	KFS	2/27/02

SIGNATURES		DATE
DRAWN	K. F. S.	2/27/02
CHECKED	K. F. S.	2/27/02
APPROVED	D. M. E.	2/27/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING

USAGE: 925/935/940 E-SERIES PRECHARGED

PART NO. 40 000 173

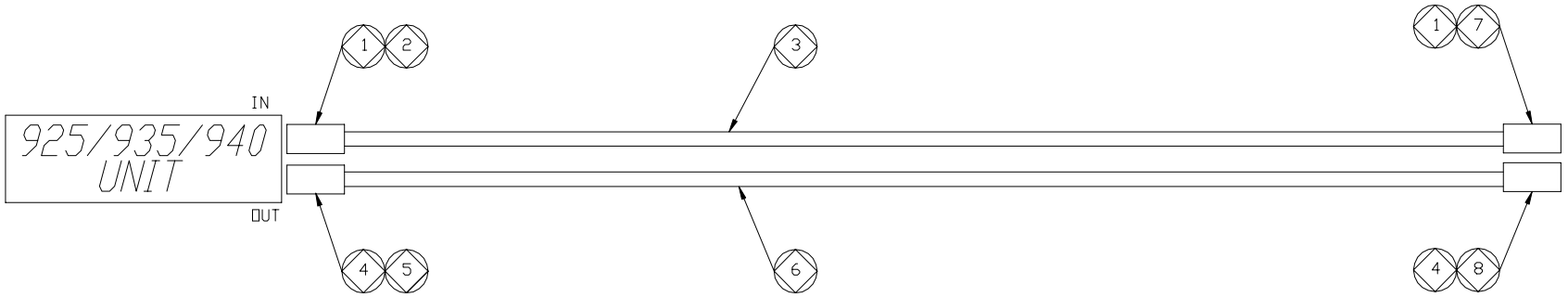
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 174

925/935/940 - STD.

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	2	08 000 009	O-RING #6 5/16"	11			
2	1	05 000 015	ST, 5/16 MALE O-RING	12			
3	AR	04 000 017	HOSE, 5/16 ID REFRIG- BULK	13			
4	2	08 000 006	O-RING #10 1/2"	14			
5	1	05 000 011	ST, 1/2 MALE O-RING	15			
6	AR	04 000 016	HOSE, 1/2 ID REFRIG-BULK	16			
7	1	05 000 027	ELL, 90° x 5/16" O-RING	17			
8	1	05 000 026	ELL, 90° x 1/2" O-RING	18			
9				19			
10				20			



REV. 1

LET.	NO.	REVISION	BY	DATE
X	02-X	PROTO ISSUE	KFS	2/27/02

SIGNATURES		DATE
DRAWN	K. F. S.	2/27/02
CHECKED	K. F. S.	2/27/02
APPROVED	D. M. E.	2/27/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING

USAGE: 925/935/940 - STD.

PART NO. 40 000 174

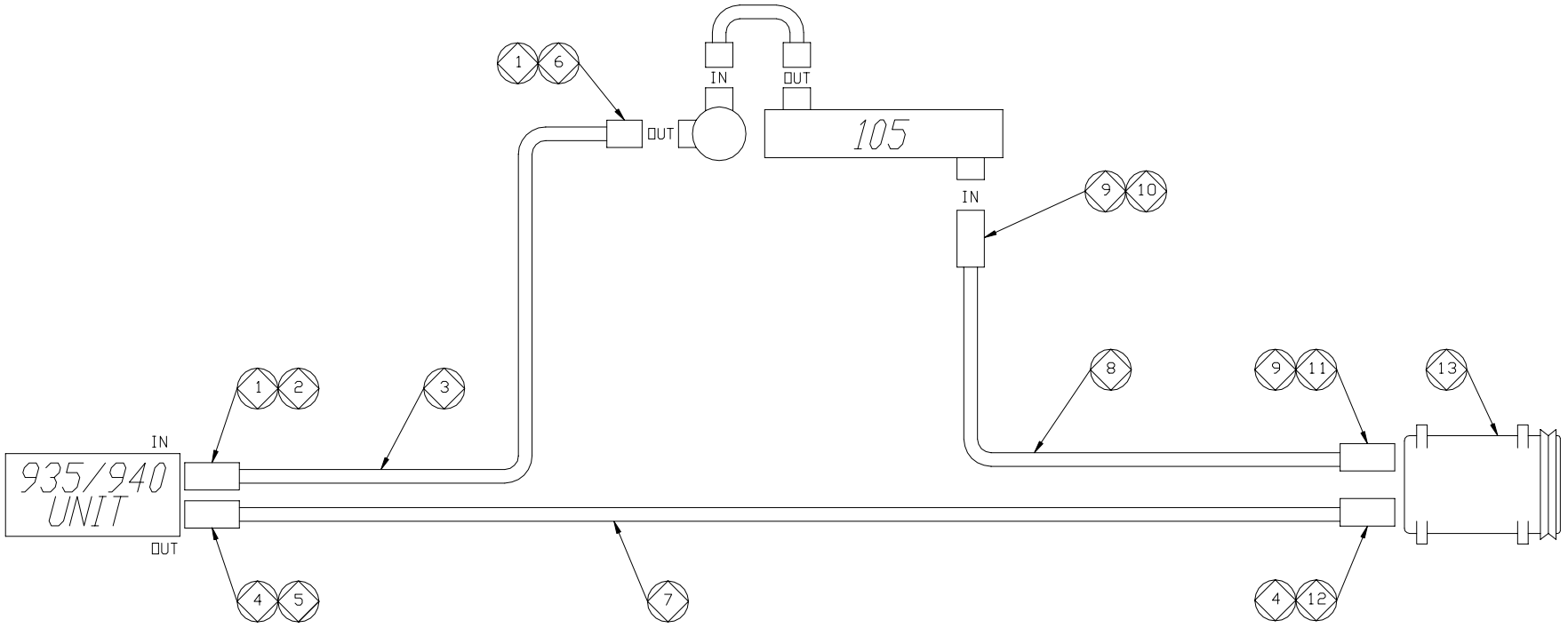
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 171

935/940 - 105 HOT WEATHER

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	2	08 000 009	O-RING #6 5/16"	11	1	05 000 XXX	ELL, 90 #8 x #8 FOR
2	1	05 000 015	ST, 5/16 MALE O-RING	12	1	05 000 XXX	ELL, 90 #8 x #8 FOR
3	AR	04 000 017	HOSE, 5/16 ID REFRIG- BULK	13	1	XX XXX XXX	COMPRESSOR
4	2	08 000 006	O-RING #10 1/2"	14			
5	1	05 000 011	ST, 1/2 MALE O-RING	15			
6	1	05 000 027	ELL, 90° x 5/16" O-RING	16			
7	AR	04 000 023	HOSE, 13/32 BARRIER REFRIG-REEL	17			
8	AR	04 000 016	HOSE, 1/2 ID REFRIG-BULK	18			
9	2	08 000 008	O-RING #8 13/32"	19			
10	1	05 000 150	ELL, 90 #8 x #8 FOR	20			



REV. A

LET.	NO.	REVISION	BY	DATE
X	02-X	PROTO ISSUE	KFS	2/26/02

SIGNATURES		DATE
DRAWN	K. F. S.	12/28/01
CHECKED	K. F. S.	2/26/02
APPROVED	D. M. E.	2/26/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING

USAGE: 935/940 - 105 HOT WEATHER

PART NO. 40 000 171

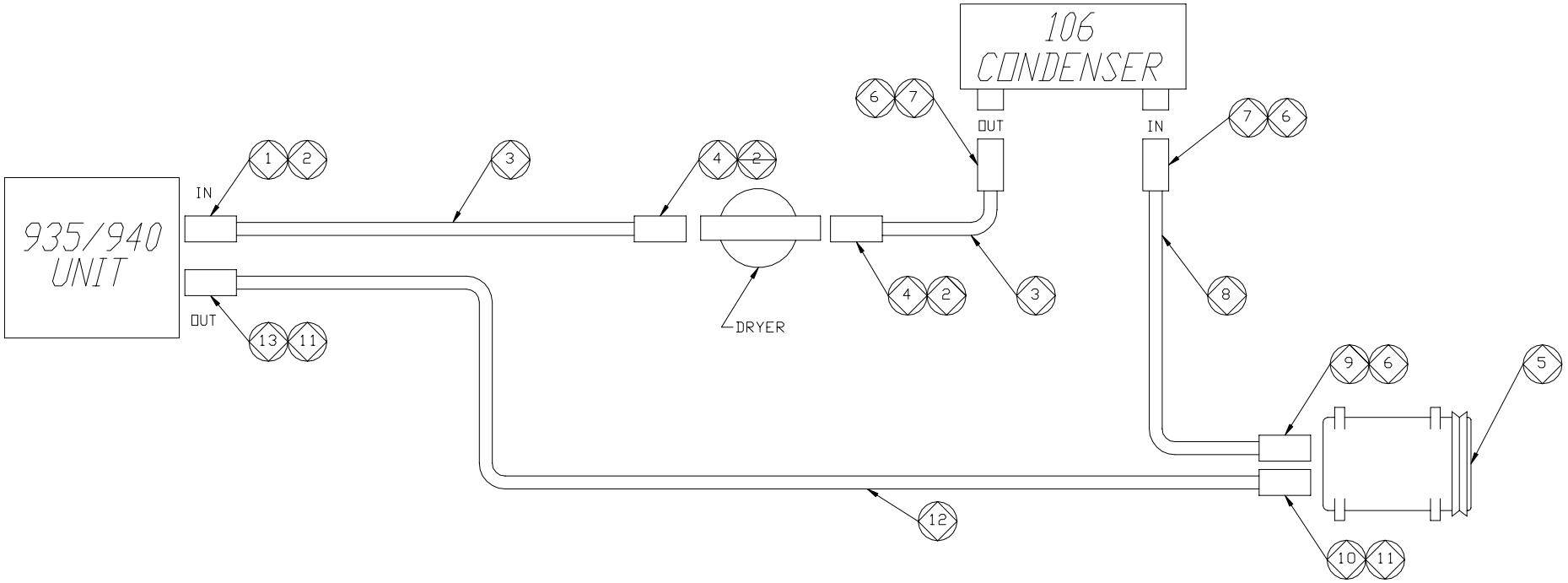
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 147

935/940 - 106 HOT WEATHER

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	1	05 000 108	ELL, 90° 6 MALE O-RING x 6 HOSE	10	1	05 000 024	ELL, 90° x 1/2 W/SV
2	3	08 000 009	O-RING #6 5/16"	11	2	08 000 006	O-RING #10 1/2"
3	AR	04 000 017	HOSE, 5/16 ID REFIG. BULK	12	AR	04 000 016	HOSE, 1/2 ID REFIG. BULK
4	2	05 000 027	ELL, 90° x 5/16" O-RING	13	1	05 000 078	ELL, 90 x 1/2" MALE O-RING
5	1	XX XXX XXX	COMPRESSOR	14			
6	3	08 000 008	O-RING #8 13/32"	15			
7	2	05 000 150	ELL, 90° #8 x 8 FOR	16			
8	AR	04 000 033	HOSE, 13/32 BARRIER REFRIG-BULK	17			
9	1	05 000 151	ELL, 90° #8 x 8 FOR W/SP	18			



REV. 1

LET.	NO.	REVISION	BY	DATE
1	00-X	RELEASED TO PRODUCTION	KFS	8/25/00

SIGNATURES	DATE
DRAWN K. F. S.	8/25/00
CHECKED K. F. S.	8/25/00
APPROVED D. M. E.	8/25/00

PRO AIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, A/C PLUMBING

USAGE: 935/940 - 106 HOT WEATHER

PART NO. 40 000 147

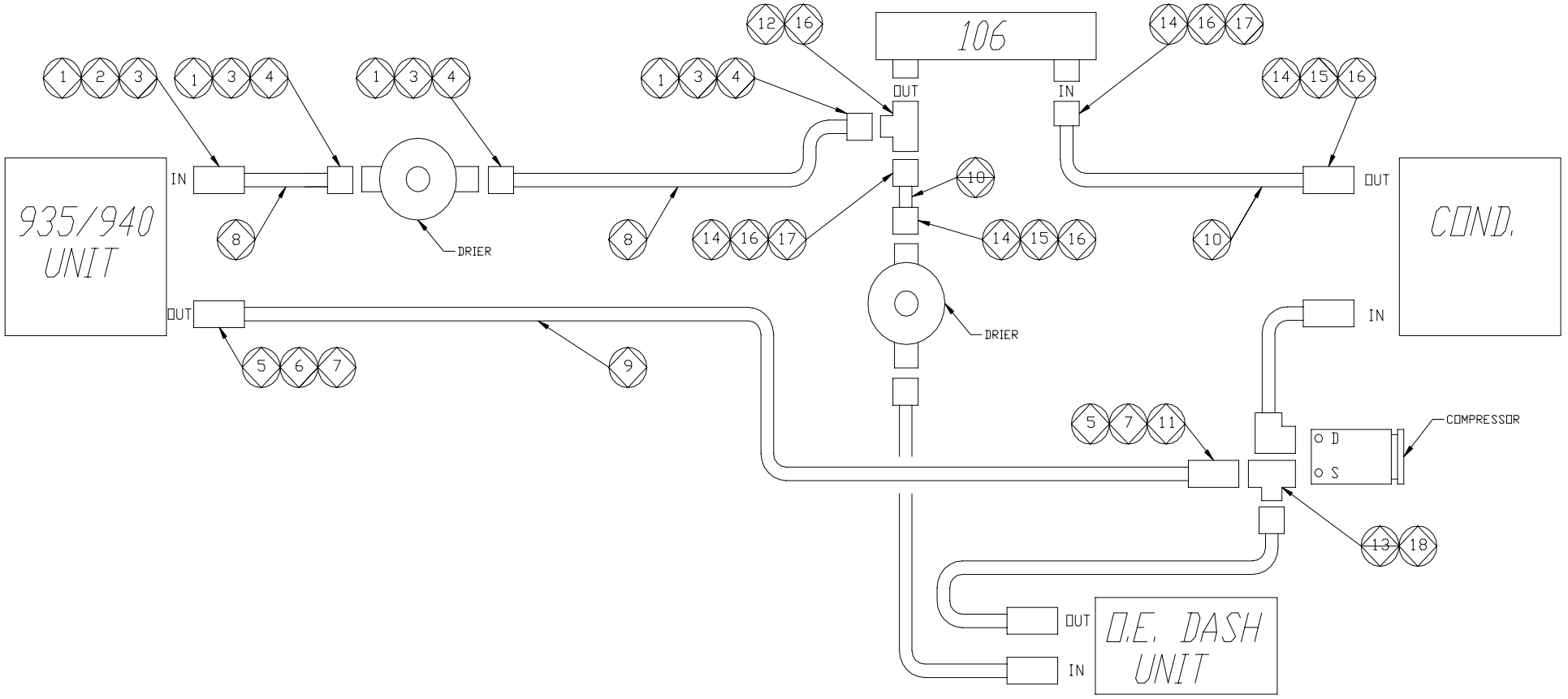
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 185

935/940 - 106 FREIGHTLINER HOT WEATHER QUICK-CLICK

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	4	08 000 009	O-RING #6 5/16"	11	1	05 000 302	ELL, 90 #10 FOR x 10 QUICK-CLICK
2	1	05 000 347	STRT, #6 MOR x 6 QUICK-CLICK	12	1	05 000 369	TEE, #8 MOR x #8 FOR x #6 MOR
3	4	02 000 247	CLAMP, #6 QUICK-CLICK	13	1	05 000 355	TEE, TUBE "O" x #10 MIO
4	3	05 000 345	ELL, 90 #6 FOR x 6 QUICK-CLICK	14	4	02 000 204	CLAMP, #8 BLACK QUICK-CLICK
5	2	08 000 006	O-RING #10 1/2"	15	2	05 000 303	ELL, 90 #6 FOR x 8 QUICK CLICK
6	1	05 000 346	STRT, #10 MOR x 10 QUICK-CLICK	16	5	08 000 008	O-RING #8 13/32"
7	2	02 000 205	CLAMP, #10 GREEN QUICK-CLICK	17	2	05 000 294	ELL, 90 #8 FOR x #8 QUICK-CLICK
8	AR	04 000 067	HOSE, 5/16 ECOFRIG QUICK-CLICK	18	1	08 000 118	O-RING, FLAT CUT TUBE-O
9	AR	04 000 059	HOSE, #10/13mm ECOFRIG QUICK-CLICK	19			
10	AR	04 000 058	HOSE, #8/10mm ECOFRIG QUICK-CLICK	20			



REV. A

LET.	NO.	REVISION	BY	DATE
A	02-114	RELEASED TO PRODUCTION	KFS	5/14/02

SIGNATURES		DATE
DRAWN	K. F. S.	5/13/02
CHECKED	K. F. S.	5/14/02
APPROVED	D. M. E.	5/14/02

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, PLUMBING 935/940 - 105 FREIGHTLINER HOT WEATHER QUICK-CLICK

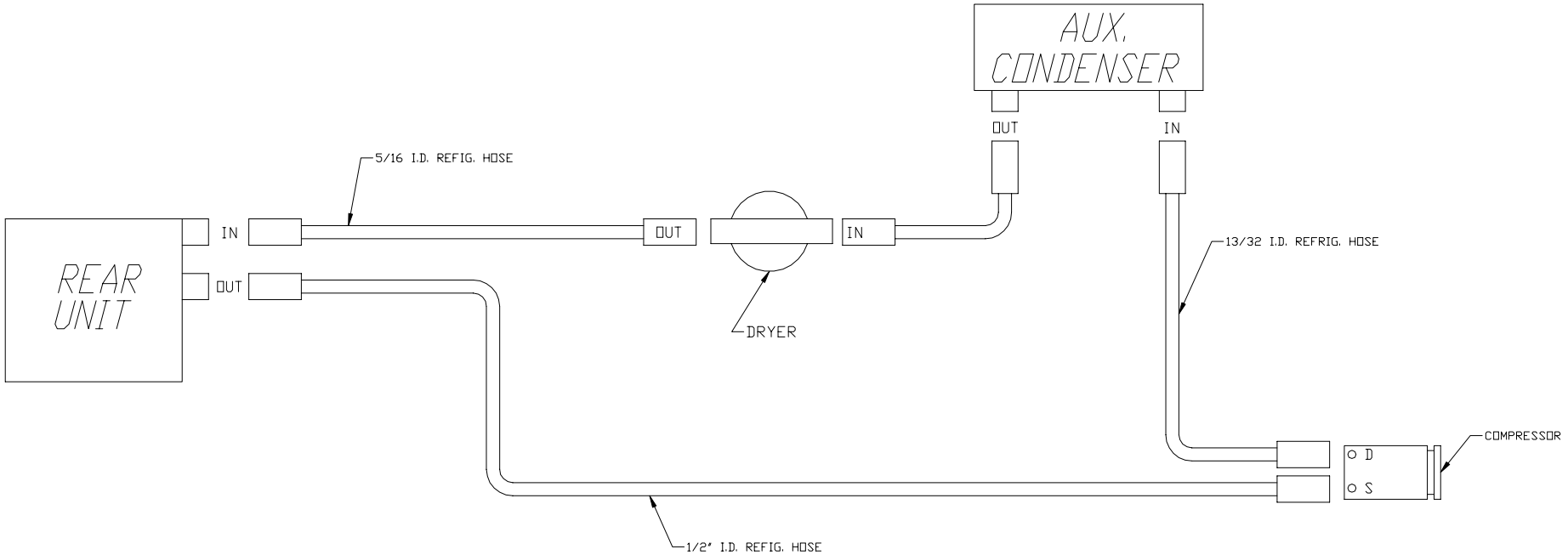
USAGE: 63 000 271

PART NO. 40 000 185

SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

PART NO. 40 000 152



AMBULANCE

REV. A

LET.	NO.	REVISION	BY	DATE
A	00-X	RELEASED TO PRODUCTION	KFS	10/16/00

SIGNATURES	DATE
DRAWN K. F. S.	10/16/00
CHECKED C. W. M.	10/16/00
APPROVED D. M. E.	10/16/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: GENERAL AUX. A/C PLUMBING SCHEMATIC

USAGE: COMPRESSOR, AUX. CONDENSER, & REAR UNIT

PART NO. 40 000 152

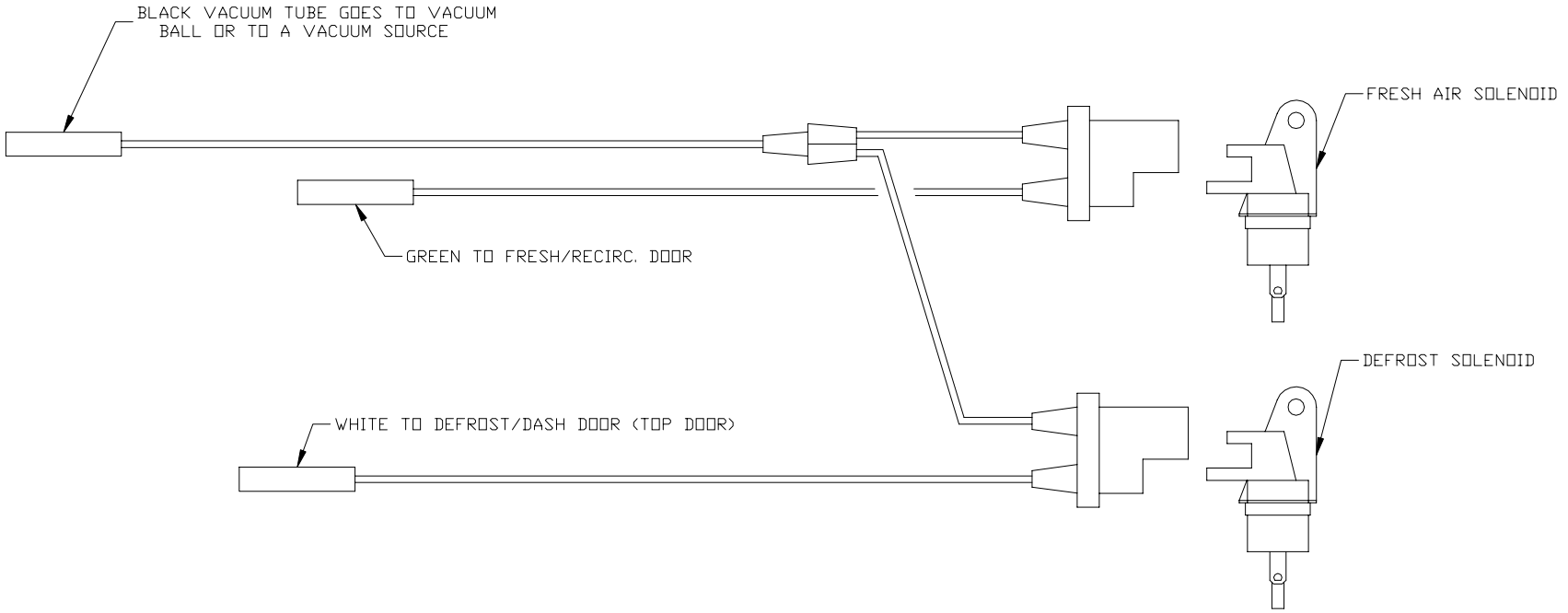
SCALE: 3/4" = 1' -0" SIZE A

SHEET 1 OF 1

VACUUM SCHEMATICS:

- 960 VACUUM - 40 000 119

PART NO. 40 000 119



REV. A

LET.	NO.	REVISION	BY	DATE
A	00-005	RELEASED FOR USAGE	KFS	1/7/00

SIGNATURES		DATE
DRAWN	K. F. S.	9/9/99
CHECKED	D. E.	1/7/00
APPROVED	M. Z.	1/7/00

PROAIR, LLC
28731 C.R. 6 ELKHART, IN 46514

TITLE: SCHEMATIC, VACUUM

USAGE: 960

PART NO. 40 000 119

SCALE: 3/8" = 1" SIZE A

SHEET 1 OF 1

MISCELLANEOUS SPECIFICATIONS:

- REFRIGERANT CHARGE AMOUNTS
- WIRE SIZING TABLE
- TORQUE SPECIFICATIONS

PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

REFRIGERANT CHARGE AMOUNTS

925 W/14' OF HOSES (A/C - 1/2", 5/16")	12oz. R-134a	3oz. OIL
935 W/14' OF HOSES (A/C - 1/2", 5/16")	16oz. R-134a	4oz. OIL
960 W/RADIATOR CONDENSER	2.125lbs	6oz. OIL
960 W/105 SKIRT CONDENSER (15' LIQUID LINE)	1.125lbs	4oz. OIL
960 TIE - IN	**CONSULT	PROAIR**

105/106 CONDENSOR ADDED TO SYSTEM (A/C 13/32", 5/16") ADD 16oz R-134a, AND 3oz OF OIL TO 925/935 AMOUNTS.

NOTE: FOR EACH ADDITIONAL 10' OF LIQUID LINE ADD 3oz OF R-134a, AND .75oz OIL.
LIQUID LINES LONGER THAN 25' YOU MUST CONSULT THE FACTORY FOR CHARGE AMOUNTS.
DIFFERENT SIZE (DIAMETER) HOSES, CONSULT FACTORY FOR CHARGE AMOUNTS.

CAUTION: USE ONLY THE EXACT OIL SPECIFIED BY THE COMPRESSOR MANUFACTURER. USE OF OILS OTHER THAN THOSE SPECIFIED WILL VOID THE WARRANTY!

PROAIR LLC

COMMERCIAL PRODUCTS SERVICE MANUAL

CONDUCTOR SIZING TABLE, MAXIMUM 10% VOLTAGE DROP @ 12VDC

GAUGE SIZE		CURRENT DRAW IN AMPERES																			
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	40	50	60	70	80	100
METRIC	ENG.	MAX LENGTH OF SAEJ 1128 CONDUCTOR (in feet) FROM POWER SOURCE TO DEVICE.																			
.5mm	20	107	53	36	27	21	18	15	13	12	11	7									
.8mm	18	172	86	57	43	34	29	25	21	19	17	11	9								
1.0mm	16	261	130	87	65	52	43	37	33	29	26	17	13	10							
2.0mm	14	413	207	138	103	83	69	59	52	46	41	28	21	17	14						
3.0mm	12	651	326	217	163	130	109	91	81	72	65	43	33	26	22	16					
5.0mm	10	1043	521	348	261	208	174	149	130	116	104	70	52	42	35	26	21	17			
8.0mm	8	1653	827	551	413	331	276	236	207	184	165	110	83	66	55	41	33	28	24	21	
13.0mm	6	2892	1446	954	723	578	482	413	362	321	289	193	145	116	96	72	58	48	41	36	29
19.0mm	4	4170	2085	1390	1043	834	695	596	521	463	417	278	209	167	139	104	83	70	60	52	42

TORQUE SPECIFICATIONS, REFRIGERANT LINE FITTINGS

TUBE O.D.	THREAD SIZE	FITTING SIZE		FT/LB
		STANDARD	METRIC	6 +/- 1
1/4"	7/16"	4	M-14	12 +/- 1
3/8"	5/8"	6	M-16/M-18	18 +/- 2
1/2"	3/4"	8	M-20/M-22	24 +/- 3
5/8"	7/8"	10	M-24	31 +/- 2
3/4"	1 1/16"	12	M-27	30 +/- 3
	1" - 14	FTO	N/A	30 +/- 3